FROM “MADE IN CHINA” TO “CREATED IN CHINA” – A STUDY OF NURTURING STUDENTS’ CREATIVITY IN ANIMATION EDUCATION IN CHINA

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Abstract

After China's reform and opening-up, structural changes were made in cultural development. China started to address the Cultural Industries as a subject for national policy-making in 1998. With the impact of the development of the Creative Industries in the UK and other countries, China adopted the term Cultural and Creative Industry in a national strategy to initiate a structural refinement of the industrial sectors. The animation industry in China has long served as a major OEM (Original Equipment Manufacturer) centre to foreign investors, and was starting to develop into ODM and OBM (Original Design Manufacturers and Original Brand Manufacturers). This led to a rapid demand for creative talent from higher education institutes in China. Animation training in China has had a long tradition of nurturing skillful artists and workers for the OEM market. As the strategic development of the Cultural and Creative Industries in China progressed, the animation industry and the animation education sector received substantial support from the government. Many schools and animation programs emerged. Many scholarly articles indicated that the rapid increase in animation programs created a number of problems. However, nurturing creativity as a core concern for animation education in the context of the creative industries has not been addressed adequately. This creates a knowledge gap in our understanding of the animation education field in China. The objective of this research is to explore the current situation of how higher animation education is nurturing students' creativity; understand how teachers and students perceive the meaning of creativity in animation education; identify what particular curricula and teaching methodologies teachers are using in animation education in nurturing students' creativity; generate knowledge to bridge the knowledge gap in nurturing students' creativity in animation education; and suggest a theoretical framework to help animation educators to improve their teaching for creativity.

Publications

Journal papers

- Ma, H. (2014) “The Necessary Elements for the Youth in Developing Creative Industries”, *Journal of Youth Studies.* Vol. 17 Issue 2: pp.3-10
- Ma, H. (2013) “The Opportunities and Challenges of Youth Startup in Creative Industries”, *Journal of Youth Studies.* Vol. 16 Issue 1: pp.3-11.
- Ma, H. (2013) “A Study of Creative Problem Solving Behavior of Design Students“, *The International Journal of Pedagogy and Curriculum*. Vol. 19 Issue 4: pp. 63-69.

Conference papers

- Ma, H. (2014) “A Study on Creativity in the Contextual Concern of Creative Industries”, Conference Proceedings: *2014 International Conference on Cultural Creative Industry and e-Business.*
- Ma, H. (2014) “A Study of Nurturing Students’ Creativity in Animation Education in China”, Conference Proceedings: *International Conference on Education and Social Sciences.*
- Ma, H. (2013) “The Cultural and Creative Industries Development in China”, Conference Proceedings: *2013 Annual Conference on Management and Social Science.*

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Chapter 1 Objective and Purpose Statement

1.1 Introduction and Overview

Animation education developed at a fast pace in China over the past ten years. In 2000, there were only two higher education institutes providing animation education programs. By 2010, more than 1,000 higher education institutes were providing about 2,000 animation programs in China (Xiao, 2011). The rapid expansion of animation education was due to the intensive support of the development of cultural and creative industries by the government. The animation industry, as one of the key cultural and creative industries, benefited from such a move (Wang, 2012).

The tremendous support and investment in animation education resulted in the rapid growth of the number of animation education programs and of the student intake. The increases in the number of programs and students seemed to be a success, but on the downside, it also created lots of problems in the animation education system (Bo, Jing & Liu, 2009). In 2013, a search with the keyword “animation education” in the China Journal Full-text Database returned over 400 articles, and half of them discussed development issues of animation education. Most of them claimed that animation education could not produce enough talent to match the demand from

the animation industry, and there was a serious shortage of qualified animation teachers. A large number of articles also touched upon words like creativity and innovation, but no article actually focused on nurturing creativity in animation education in China.

Animation is one of the key sectors of the cultural and creative industries. If creativity is considered as a major component in the cultural and creative industries, nurturing creativity should play an essential role in animation education. However, in the vast number of published articles on animation education, we seldom see research topics addressing this issue. This reveals a potential knowledge gap in the nurturing of creativity in animation education. The study of nurturing creativity in animation education will contribute to achieving a greater understanding of the development of animation education as well as the promotion of cultural and creative industries.

The main focus of the research is to explore the current situation regarding the teaching objectives and approaches of higher education institutes on animation education, and tries to understand how teachers and students perceive the meaning of creativity in animation education. The research also tries to identify what particular teaching approaches and methodologies teachers are using within animation education in the nurturing of students' creativity. Finally the research also suggests a theoretical framework in creativity teaching to help animation educators improve their practice in teaching for creativity.

The following sections in this chapter provide an overview of the research. The section on Background and Context reviews the development of animation education in China and identifies the current problems encountered in animation education development. This section also indicates a knowledge gap in nurturing creativity in

animation education. The section on Statement of Purpose and Research Questions specifies the purpose of the research and the proposed research questions. The Research Approach and Design summarizes the research methodology adopted in this research and the corresponding methods and procedures in collecting and analyzing the data. The Chapter Summary wraps up the chapter and summarizes some key discussions of this chapter.

1.2 Background and Context

The fast economic development of China in recent decades has already turned it into a manufacturing giant. It dominates the global production of textiles, footwear and toys, as well as the recent high-tech productions in high value-added electronic and telecommunication equipment. Although China is named the “World’s Factory”, the fact is that China still relies heavily on its low cost of labor to attract outsourcing production from companies in developed countries (Keane, 2006). This foreign investment enterprise will move away from China if the favorable factor of low labor costs disappears. In order to maintain competitiveness, China has explored some other opportunities and introduced the concept of Cultural and Creative Industries as a new initiative in economic development.

The Rise of Creative Industries

The term Creative Industries was a concept that originated from the Blair Labour Government’s establishment of the Creative Industries Task Force by the Department of Culture, Media and Sports (DCMS) in the United Kingdom in June 1997. The Task Force comprised 13 key sectors of industry as Creative Industries, namely advertising, architecture, arts and antique market, craft, design, designer fashion, film and video,

interactive leisure software, music, performance arts, publishing, computer software and computer services, and television and radio. An update in the Creative Industries Mapping Document further defined creative industries as “those activities which have their origin in individual creativity, skill and talent and which have the potential for wealth and job creation through the generation and exploitation of intellectual property” (DCMS 1998). This is a definition that focuses on economic efficiency and social benefit that is drawn from property rights and employment opportunities (HKADC, 2000). Similar steps were taken in the United States, Australia, New Zealand, Singapore, Taiwan, Hong Kong and China.

The importance of the Creative Industries is growing among modern post-industrial knowledge-based economies. Apart from the high growth rate in contributing to the economic wealth, the Creative Industries also foster cultural identity, social solidarity (HKADC, 2000) as well as acting as a catalyst for urban regeneration (Jones, Comfort et al., 2004). Moreover, the Creative Industries are not subject to the traditional diminishing of marginal returns, and they do not consume large amounts of material resources as the cost of production. The adoption of the Creative Industries for future economic development can resolve problems of high energy consumption, pollution production and the low level of value added in manufacturing industries (Wu, 2006).

Development of Animation Industry

The first animation production in China can be traced back to 1926 which is two years ahead of the birth of Mickey Mouse in “Steamboat Willie”. The “大闹画室” (Uproar in the Studio) was produced by the four Wan brothers in black and white. The animation industry moved on to develop steadily in the 1940s. The Northeast Motion Picture Studio was established in 1946 by the communist party and animation was

used to help and spread political content. Later, the Northeast studio changed its name to Shanghai Picture Studio Group. In 1950s, Northeast group joined with other parties like the Central Academy of Fine Arts and the Art Institute of Suzhou to become the predecessor of the Shanghai Animation Film Studio (Ma, 2012). The first color animation "乌鸦为什么是黑的" (Why the Crow is Black-Coated) was released and became the first Chinese animation recognized internationally (Liu, 2011). The Cultural Revolution in 1966 had a major impact on the development of the animation industry in China. The animation industry was practically put on pause until the end of the revolution in 1976. The significant damage to the animation industry in the Cultural Revolution period was further challenged by the popularization of Japanese animations. The domination of Japanese anime TV series in the Far East in the 1980s made China suffer in producing her original productions. Many experienced animators were moved to join original equipment manufacturer (OEM) animation productions for foreign enterprises from both Japan and the USA (Wu, 2002).

Owing to the development of the Cultural and Creative Industries in China, the government released a series of policies to support the animation industry in the 21st century (Wang, 2009). These policies covered departments from Ministry of Finance, Ministry of Education, Ministry of Science and Technology, Ministry of Information Technology, Ministry of Commerce, Ministry of Culture, State Administration of Taxation, State Administration for Industry and Commerce, State Administration of Radio, Film and Television, State Administration of Press, Publication, Radio, Film and Television, etc. The objective of these policies was to enable the animation industry to reach the top level in the global animation market. These policies also served to strengthen higher education institutes in both the curriculum and talent cultivation to serve the development of the cultural and creative industry (Liu & Xiao, 2007)

These policies not only included direct financial support to the animation industry and to animation education, but also prohibited the broadcasting of foreign animation films or animation information at particular periods of time in the day, or to meet a specified ratio of foreign to local animation. These created major initiatives for the local animation industry to produce original animation titles and directly accelerated the transformation of the animation industry from being OEMs to being OBMs (Original Brand Manufacturers) (Liu, 2011).

The Early Development of Animation Education in China

The development of animation education in China can be traced back to the 1950s. The Suzhou Art and Design School was the first education institute in China which offered a program major in animation education in 1952. However, the program was suspended in 1953. In 1959, the Shanghai Film School was established to nurture professional film makers for the Shanghai film business. A two-year animation program was also offered, and all of the instructors were from the Shanghai Animation Film Studio. The School was closed down after it generated two cohorts of graduates in 1963. In the 70s, the Shanghai Animation Film Studio kept nurturing animation professionals through various means, and it also supported the Beijing Film Academy in offering animation programs. Before the 80s, animation training was mainly focused at the Shanghai Animation Film Studio. The Studio nurtured and produced animators to support their own productions. The modes of training included small scale training courses as well as apprenticeship at the studio. Owing to the small demand and production scale in original animation and limited access to animation training, the animation industry remained small until 90s. In the 90s, the rapid growth of demand in OEM work from foreign enterprises in Japan and the USA

attracted most of the practitioners, and people making original productions moved to OEM production organizations. Owing to the relatively low cost of labor, China attracted a large volume of foreign labor-intensive animation production and gradually became focused on OEM in animation production for foreign enterprises.

The Recent Development of Animaton Education in China

The vigorous support of the government in developing cultural and creative industries in China made many OEM animation production companies turn part of their production scale into producing original titles. Moreover, many new animation production houses were formed to develop their own titles. Many government and private-funded animation bases also developed to provide support and facilities for animation productions (Wang, 2012). All these developments, as well as the support of government in expanding animation education, created a sudden boom in animation education development in China.

In 2000, there were only two education institutes providing animation education programs in China. By 2009, 1,279 higher education institutions were running 1,877 bachelor degree animation programs in China (Li, 2010). Owing to different backgrounds and focuses of these institutes, they were providing animation education programs that carried distinct characteristics of their institutes. Institutes providing animation education course mainly belonged to four types of background, namely arts, art and design, film and television communication, and computing. Most of them developed animation programs based on their existing resources. Some education institutes emphasized art and design aspects while some focused on the technology and computer skills (Ye, 2010). However, most of these programs saw discipline-specific and practical skills as the most important element of training in

their curriculum.

Problems in Animation Education

In recent years, the rapid development in the animation education sector showed success in producing thousands of graduates. However, many studies indicated that the rapid increase in the number of animation education programs created many problems (Pan 2012; Wang, 2007). The major concerns were in the following three aspects.

Inadequate number of qualified teachers

One of the key concerns was the inadequacy of the resources to satisfy the rapid increase in the expansion of animation education programs. Owing to the historical development of the animation education system, there were only a few education institutes providing animation education in China. The booming demand for animation educators over the last ten years created a major shortage of qualified animation teachers (Sun, 2005; Tao, 2010). Qualified teachers should possess both academic understanding and practical knowhow in animation work, as well as good teaching skills. However, the rushed development of new animation programs as well as over expansion of the student intake in the last few years created an insufficient supply of qualified teachers. Fresh bachelor graduates from animation disciplines might have been employed to take up teaching in the newly operating animation programs (Xu and Cui, 2010). Without support from other senior animation faculty, their development to function as professional animation teachers would be very

difficult.

Curriculum does not match with the market demand

Owing to the intensive support of the government in developing new animation programs, many higher education institutes implemented animation programs irrespective of whether they had corresponding resources or not (Sun, 2005). Moreover, there was no agreed standard in the animation curriculum, some of the program management might not have adequate knowledge and experience in animation education, and the developed program structures and program objectives were not well defined (Wang, 2012). On the other hand, some of the higher institutes developed their own curriculum based on their existing resources instead of market demand.

Focus or diversify in discipline knowledge

Some scholars indicated that some of the animation programs were not focused specifically enough on animation study (Xu and Cui, 2010). They claimed that these programs were too broad in their area of studies and produced graduates who could not take up animation work independently (Sun, 2005). This phenomenon might be due to the inadequate qualified teachers in the programs, who substituted animation subjects with some other related subjects. On the other hand, the programs might purposely work in this way to allow a wider choice of job opportunities for their graduates.

1.3 Knowledge Gap in Animation Education Research

In 2013, a search with the keywords “動漫教育” (animation education) in the China Journal Full-text Database popped up a list of four hundred and twenty three articles (Appendix 1). Two hundred and one articles studied issues related to the development of animation education in China. Most of them pointed out the various problems in the rapid expansion of animation education over the last ten years. They covered human resources issues as well as curriculum development issues in the animation education system. Some of them mentioned briefly the importance of creative thinking and creativity in animation education. However no article covered the nurturing of creativity in animation education.

In the China Animation Yearbook 2010, a chapter “中国动画高等教育发展报告” (Report on animation education in higher education development in China) showed a recent survey on the “动画教育面臨辦學困難” (Problems encountered in animation education) (Li, 2010). It listed 12 categories of problems identified with scores. The 12 categories prioritized in the order of importance were: (1) lack of high level professional faculty, (2) teachers’ lack of practical industry experience, (3) recession in the animation industry, (4) low salaries of the faculty which prohibited them from focusing on teaching, (5) inadequate professional facilities, (6) the weakness of practical study in the curriculum, (7) lack of communication with the industry, (8) lack of teaching materials like text books and audio visual materials, (9) inadequate support from the institute, (10) substandard quality of the applicants, (11) the fact that the program and curriculum structure are not well planned, and (12) the inadequacy of teaching space. Among the 12 issues identified, none address the

issues of creativity nurturing.

However, the same report also showed another survey on the “动画专业学生需要的能力得分排序” (Ranking of the ability required for the animation major students). It listed 13 categories of abilities, and the priority in importance were: (1) creative thinking, (2) professional animation knowledge, (3) drawing skills, (4) cultural understanding, (5) aesthetic ability, (6) computer skills, (7) ability to acquire knowledge, (8) team work ability, (9) independent work ability, (10) expression and communication ability, (11) ability to adapt to the environment, (12) organization management ability, and (13) foreign language level. It was a surprise that “creative thinking” was ranked at the top of the list and the average score was 11.73, which was far higher than the next item on the list, “professional animation knowledge”, with a score of 9.96 (Appendix 2).

From the above survey, it is apparent that animation educators really saw the importance of the type of creative thinking that is a key part of creative ability in animation education. This result shows the need of the cultural and creative industries: the demand for creative talent. However, the survey did not show awareness of there being any issue in nurturing of creative thinking or creativity in animation education. However, the author of the article pointed out explicitly that the higher education institutes consider creativity supremely important in animation education, but at a certain level, lots of the higher education institutes were relatively single-focused and did not have a systematic approach in recognizing principles in animation education. In addition, the author also indicated that the issue was how to actualize the nurturing of “creative thinking” in the program, and the fact that the curriculum needs an in-depth exploration (Li, 2010). This comment showed a major

dilemma in animation education in nurturing of creativity. Most animation educators considered creativity important, but no research has attempted to take a closer look at this issue. This exposes a knowledge gap in this particular area, which this study aims to bridge.

1.4 Statement of Purpose and Research Questions

The rapid development of cultural and creative industries in China induces a growth in the development of intellectual property. Some of the OEM companies are gradually turning themselves into original design manufacturers (ODMs) and original brand manufacturers (OBMs) operations. The animation industry also benefits from the government's policy support and starts to develop and produce their own original productions. The change of production direction creates a great demand for creative workers, and naturally the educational institutes become the obvious source for this creative talent.

In the last decade, the number of undergraduate programs in animation disciplines grew dramatically with substantial support from the government. The growth is quite promising in terms of numbers, but the quality of the programs has been questioned by many scholars (Sun, 2008; Xiao, 2011).

As suggested by Niu and Sternberg, the Chinese culture relies on the value of collectivism. So "educators in China tend to overlook the practice of teaching creativity, placing more emphasis on teaching basic knowledge and basic analytical skills" (Niu and Sternberg, 2003: 108). Animation schools have a long tradition of nurturing skillful artists and workers in the animation industry for OEM markets. As

the Creative Industries develop in China, the animation industry is classified as one of the sectors of the Creative Industries. The support of government for the development of the animation industry is a strong push factor, which facilitates a fast development of animation education. Many schools and animation programs have emerged (Wang, 2007). Many scholars claim that the rapid development of animation education has created problems in the animation education sector (Xiao, 2011). A number of them see the importance of nurturing creativity in animation education, but no study has been made in this particular area. This creates a knowledge gap in our understanding of animation education in China. It is the purpose of this research to know how the current animation education nurtures creative talent to meet the demand of the development of creative industries in China.

In order to bridge this knowledge gap, this research aims to (1) explore the current situation of how higher animation education is nurturing students' creativity; (2) understand how teachers and students perceive the meaning of creativity in animation education; (3) identify what particular curricula and teaching methodologies teachers are using in animation education in nurturing students' creativity; (4) generate knowledge to bridge the knowledge gap in nurturing students' creativity in animation education; and (5) suggest a theoretical framework to help animation educators to improve their teaching for creativity.

In seeking to attain the above objectives and shed light through this study, the research addressed the following research questions:

1. How do animation teachers and students in China perceive the objective of animation education?

2. How do animation teachers and students perceive the meaning of creativity in animation education?

3. What particular curricula do animation teachers and students perceive to have been implemented in animation programs to nurture students' creativity?

4. What methodologies do animation teachers and students perceive to have been used by animation educators in nurturing students' creativity?

1.5 Research Approach and Design

A qualitative research approach can promote a deep understanding of a social setting or activity in the perspective of the research participants. The study used a qualitative research approach to collect, analyze and interpret data, because 'good description is fundamental to the research enterprise and it has added immeasurably to our knowledge of the shape and nature of our society' (De Vaus, 2001:1). The aim of the study is to explore and identify how creativity is nurtured in the animation education in China. To achieve this, the study attempted to discover how creativity was interpreted and nurtured in animation programs, and present descriptive research findings, which would enable the bridging of the knowledge gap in this particular area. This research would also to some extent formulate a generic model that might help teachers improve their teaching and learning approach in nurturing creativity in disciplines related to animation education.

Research Sample

In a qualitative research approach, the selection of participants in a study is based on purposive sampling (Merriam, 1998). Unlike the random sampling techniques that are based on statistical probability theory, purposive sampling aims at identifying and selecting “information-rich cases” for study (Bloomberg and Volpe, 2008).

Owing to the limited resources, the research focused on the animation education in a single province – Beijing. Beijing was selected as the research location owing to the reasons that (1) it is the capital of China, which reflects the importance of political and economic policies; (2) it is the first province that adopted the cultural and creative industries policy; (3) it has the most profound history in animation education development in China; (4) most of the well-established animation schools are located in Beijing; (5) the animation schools in Beijing accepts students from all provinces of China; (6) the graduates of the animation schools are being employed all over China.

In 2011, there are about 98 higher education institutes in Beijing (Appendix 3). Among these institutes, 36 of them provide animation education programs (Appendix 4). Owing to the study’s focus on creativity nurturing, all those institutes providing vocational training were excluded. Ten institutes providing bachelor degrees or above were included as the research sample (Appendix 5).

Data Collection

This first stage employed face-to-face semi-structured interviews for teachers and the corresponding final year supervisees of these teachers. Each institute identified two teachers and four final year students to participate in the interviews. Two pilot interviews were conducted prior to the actual interviews and the questionnaire was

improved based on the deficiencies of the pilot interviews identified. The study successfully interviewed 18 teachers and 30 students. All the interviews were then transcribed into text and input to the qualitative data analysis software MaxQDA for further analysis. The result then was used to improve the conceptual framework for conducting the second stage interview.

This second stage employed telephone survey to collect data on the students' attitudes on the teaching methodologies of the teachers in nurturing students' creativity. Forty-four recent graduates from the 10 chosen institutes were successfully interviewed.

Data Analysis

Qualitative data analysis software MaxQDA was used for the coding process. Multi-pass coding was performed to identify and refine the key codes and the conceptual framework that derived from the literature. The coding process helped to identify and note the common patterns in the data. Several data summary tables were produced to address the research questions. The data collected from the second stage was plotted as frequency distribution charts for analysis. All the comments from the interviewees were also transcribed into text and inputted to MaxQDA for further analysis.

Throughout the data collection and analysis process, the issue of trustworthiness was carefully addressed. A research protocol was formulated before the start of the data collection process and data analysis process. The protocol governed the procedures to contact the potential research samples, how to address the research issues to

prevent undue influence to the research participants and how to handle the collected data. Deliberate efforts were made to assure the validity and reliability of the study. It included employing more than one method to collect data and addressing inter-rater reliability by inviting colleagues to review the appropriateness of the coding process.

1.6 Chapter Summary

Animation education developed fast in China over the last ten years. The rapid expansion of animation education was due to the intensive support of the development of cultural and creative industries by the government. The animation industry, as one of the key cultural and creative industries, benefited from such a move. The tremendous support and investment in animation education resulted in a rapid growth in the number of animation education programs and in the size of the student intake. These increases could have been taken as a success story, but they also created lots of problems in the animation education system. In 2013, an "animation education" keyword search in the China Journal Full-text Database returned over 400 articles, and half of them discussed development issues of animation education. Most of them claimed that animation education could not meet the demands of the animation industry, and there was a serious shortage of qualified animation teachers. A large amount of articles also touched on words like "creativity" and "innovation".

If creativity is considered as a major component in the cultural and creative industries, and animation industry is one of the key sectors in the industries, creativity nurturing should play an essential role in animation education. However, in the vast number of

published articles in animation education, we seldom see research topics addressing this issue. This evidence concluded a knowledge gap in the creativity nurturing in animation education. The study of nurturing creativity in animation education shall thus contribute high value to the development of animation education as well as the promotion of cultural and creative industries.

The objective of this research is to explore current animation education in nurturing students' creativity in higher education institutions; understand how teachers and students perceive the meaning of creativity in animation education; and identify what particular curricula and teaching methodologies teachers are using in nurturing students' creativity in animation education in China; and propose a theoretical framework in teaching for creativity to help animation educators to improve their practice on teaching for creativity.

The study mainly uses a qualitative research approach to collect, analyze and interpret data. Quantitative data from a survey was collected to provide simple statistical information to support the qualitative analysis. The purpose of the study is to explore and identify how creativity is nurtured in animation education in China. To achieve this, the study attempted to discover how creativity is interpreted and nurtured in animation programs, and present descriptive research findings which would enable the bridging of the knowledge gap in this particular area.

Chapter 2 The Development of Animation Education in China

2.1 Introduction and Overview

Thanks to the strong support of the government of China in developing cultural and creative industries, many animation production companies originally engaged in OEM production started to work on original animation. The sudden increase in the demand for production capacity in animation created a corresponding boom in animation education in China (Li, 2010). This Chapter provides a backgrounder on the development of the Cultural and Creative Industries in China, and how it affects the development of the animation industry and animation education in China.

2.2 Creative Industries

As mentioned earlier, the term Creative Industries was a concept that originated from the Blair Labour Government's establishment of the Creative Industries Task Force by the Department of Culture, Media and Sports (DCMS) of the United Kingdom in June 1997. The Task Force comprised representatives of 13 key sectors of creative industries, namely advertising, architecture, arts and antique markets, crafts, design,

designer fashion, film and video, interactive leisure software, music, performance arts, publishing, computer software and computer services, and television and radio. Consequently, the Creative Industries Mapping Document further defined creative industries as 'those activities which have their origin in individual creativity, skill and talent and which have the potential for wealth and job creation through the generation and exploitation of intellectual property' (DCMS, 1998). This is a definition that focuses on economic efficiency and social benefit drawn from property rights and employment opportunities (HKADC, 2000).

In the UK, creative Industries accounted for 6.2% of Gross Value Added in 2007. The Creative Industries' grew by an average of 5% per annum between 1997 and 2007, compared to an average of 3% for the whole economy over this period. Exports contributed £16.6 billion to the balance of trade in 2007, equating to 4.5% of all goods and services exported. Software, Computer Games and Electronic Publishing had the highest average growth of 9% per annum (DCMS, 2010).

Clearly, creative industries are fast growing industries which 'provide job opportunities, create wealth, produce consumer goods and services for local and overseas markets, enable growth in overall consumption, promote social solidarity as well as export cultural influence' (HKADC, 2000). Understanding creative industries and its operation in the new economy is essential to those people involved with the creative industries as well as policy makers worldwide who wish to promote economic growth.

The original idea of identifing creative industries actually emerged over the past thirty years. The concept of "culture industry" comes from an essay by Adorno and Horkheimer that criticizes the commercial production of mass culture (Adorno and Horkheimer, 1944). Members of the Frankfurt School asserted that the culture

industry was working on behalf of capitalist society. In the 1990s, cultural policy in the United States promoted commercial cultural goods. Art and culture was redefined with a role in promoting innovation and thus economic growth. A new definition of cultural industries emerged (Healy, 2002).

In the UK, the term “cultural industries” was used by the Greater London Council (GLC) in the 1980s for those cultural activities that fell outside the public funding system but operated commercially as important generators of job opportunities and wealth. The cultural strategy of the GLC was to provide an alternative economic approach to promote and democratize cultural production and distribution for these cultural activities. Confusion in the terminology as well as conflicts between the economic, the cultural and the political, led to the Department of Culture, Media and Sport changing the “cultural industries” into the “creative industries”. The generally accepted reason for this move was to allow the DCMS to focus on a more directly economic and value-laden agenda and allow the Arts Council to work with the part of culture that emphasizes “quality” and “arts” (O’Connor, 1999).

In 1997, the UK government set up the Creative Industries Task Force. The establishment of the Task Force was a clear recognition of the important role of the sector for the future growth of the economy. The Task Force had to monitor activity on a consistent basis and to develop policy to promote the development of the industries. Dedicated financial support was provided, and legal support, such as the implementation of an intellectual property law, was enabled for these sectors. Similar steps were taken in Singapore, Hong Kong and New Zealand etc. However, all of them have different classifications and some of them adopted the name Creative Industries, while some of them use the term Cultural Industries.

2.3 Cultural and Creative Industries in China

Cultural policy in China has long been used as a channel of propaganda for serving political purposes. After China's "reform and opening-up", structural changes have been made in cultural development. China started to address the cultural industry as a subject for national policy-making in 1998. With the impact of Creative Industries development in the UK and other countries, China adopted the term Cultural and Creative Industry in a national strategy to initiate a structural refinement of the industrial sectors.

Although the terms "cultural industry" and "cultural economy" have appeared in internal Party documents since 1992, the term "cultural industry" was properly declared as part of the strategic recommendation document for the national Tenth Five-Year Plan at the 15th Party Congress of the Communist Party of China in 2000. Ever since then, cities and provinces in China started to develop their corresponding cultural industry policy plans. In 2001, the 4th Plenary Session of the 9th National People's Congress ratified the concept of the cultural industries. The idea of "creative industries" was introduced in 2004.

An extensive creative industries plan was implemented by the Shanghai Municipal Government in 2005. It included the establishment of a research institute, the Shanghai Creative Industries Research Centre (Keane, 2007). On 27 December 2005, the 11th General Meeting of the 9th Committee of Beijing announced that the city of Beijing would turn creative industries into the pillar of development of Beijing and they would start to promote creative industries from 2006 (Hui, 2006). This is the first time official use was made of the term "Cultural and Creative Industries" in China. In December 2006, Beijing held the 1st International Beijing Cultural and Creative

Industries Expo. This signified that the “Cultural and Creative Industries” had officially become part of the plan for the mainstream strategic development of China.

China has been evolving from an industrial economy to a knowledge economy. By developing creative industries does not only help in sustaining high growth rate in contributing to economic wealth, the creative industries also foster cultural identify, social solidarity (HKADC, 2000) and acting as a catalyst for urban regeneration (Jones, Comfort et al., 2004).

Some reasons suggested for developing creative industries in China are due to: (1) the average per capita income of China has reached the level of USD 3000. It signifies the people will demand more than daily necessities, wanting higher standards of entertainment and various kinds of cultural items to consume; (2) economic globalization creates intensive global and local competition. In order to ensure the industries of China maintain their competitiveness and sustain the level of economic growth, necessary measures should be made to improve the policy of the industrial development (Wu, 2006).

2.4 Animation Industries in China

The history of animation in China can be traced back to the four Wan Brothers (万氏兄弟), Wan Laiming (万籁鸣), Wan Guchan (萬古蟾), Wan Chaochen (萬超塵) and Wan Dihuan (萬滌寰). In 1918, The Wan Brothers were impressed by American cartoons when they debuted in China. They spent four years investigating the basic principle of what an animation was, in a situation in which they did not have any technology or capital support. The Commercial Press (商务印书馆) entrusted the Wan Brothers to produce the first animated advertisement “舒振东华文打字机” (Shu Zhendong Chinese typewriter) and it was completed in 1922. This is also the first

animation among the Chinese people. The accumulated experience soon helped them produce two more advertisements.

In 1921, a Chinese individual travelled to the US and established an animation company called Great Wall Film Company (长城画片公司) in New York. In 1924, he brought movie production equipment back to China for the purpose of setting up a production base. He heard about the experience and successful story of The Wan Brothers and invited them to produce an animation with him. In 1926, “大鬧画室” (Uproar in the Studio) debuted. It was a silent animation film in black and white, and produced by Commercial Press, Shanghai. This animation was a combination of live action and animation. This animation was not released until another two animations were completed. Starting from this period, Chinese animation became well-known all over the world. (Li, Shu & Xue, 2012)

In 1928, The Wan Brothers (万氏兄弟) and Movie Star Film Company (明星公司) cooperated to create the special effects for “火烧红蓮寺” (Burning the Hung Lin Temple). The film used animation techniques to produce visual effects for a scene of sword-fighting in the sky. This was a breakthrough in visual effect production.

In the following few years, The Wan Brothers cooperated with several companies to produce a number of animated films, such as “香草美人” (A Beauty of Perfumed Grass) and “父母子女” (Father Mother Son Daughter). At the beginning of the outbreak of war, they produced many movies focused on the anti-imperialist acts of Japan. In 1935, they created the first animated film with sound in China, called “骆驼献舞” (The Camel's Dance).

In the autumn of 1940, Zhang Shankun (张善琨), general manager of the Xinhua Film Company (新华影业公司) foresaw that the company could make a profit from producing animation. Thus he invited Wan Laiming, Wan Guchan and his brother to

produce a feature film called “铁扇公主” (Princess Iron Fan), and a new Cartoon Section was setup for this production (Sun, 2009). This film had great impact in promoting a feeling of solidarity against Japanese militarism, as it propagated the idea of national unity and national spirit (Li, Shu & Xue, 2012).

In October of 1946, two film production companies under the control of the Communist Party of China were established. They were the Yan'an Film Studio (延安电影制片厂) and the Northeastern Film Studio (东北电影制片厂). Three staff, including Tadahito Mochinaga, were in charge of the Cartoon Section under the Art Department. With sufficient capital support, the first puppet film, “皇帝梦” (Emperor's Dream) was created. In 1948, the Cartoon Section was expanded and produced another animation film, called “甕中捉鳖” (Go After an Easy Prey).

In 1950, the Northeastern Film Studio in Changchun moved to Shanghai and merged with the *Shanghai* Film Studio (上海電影制片厂). In 1957, the Shanghai Animation Film Studio (上海美术电影制片厂) was finally established.

Before the actual establishment of the Studio, the Art Department produced a total of 94 art films. After the establishment, between 1957 and 1982, the total number of films produced increased to 187. “骄傲的将军” (The Proud General), “神笔马良” (Ma Liang and his Magic Brush), “小蝌蚪找妈妈” (Where is Momma?), etc., were created before the Studio was established.

In the 20th century, at the beginning of the 1960s, “大闹天宫” (*Havoc in Heaven)* was a classic film with national characteristics. Directed by Wan Laiming and Tang Cheng (唐澄), the total length of “大闹天宫” was 117 minutes. In 1978, it was a very popular film, both in China and overseas. It won four competitions and has been released in 40 countries or states, achieving the highest rate of export for a Chinese animation film.

After the public screening, it caused a great sensation internationally. It won prizes in a number of competitions. These included the 13th Czech Republic Karlovy Vary International Film Festival Special Interest Award in 1962; the 2nd Chinese film "Hundred Flowers" festival Best Art Award and Children's Literature award in 1963; 1978 International London Film Festival Outstanding Film Award in 1978; and the 5th Quito City International Film Festival Award (Li, Shu & Xue, 2012).

During the Cultural Revolution, from 1966 to 1972, few animated films were made. The Shanghai Animation Film Studio produced about 10 animation films, all of them strongly focused on political matters.

At the end of the 1970s, Chinese animated short films aroused overseas interest. Many 10-minute short films were created, and were praised by both Chinese and overseas critics, despite their short length. For instance, “三个和尚” (Three Monks) was highly appreciated by Japanese renowned animator Osamu Tezuka.

In 1979, the classic legend “哪吒鬧海” (Nezha Conquers the Dragon King) was produced. This film won the 3rd Chinese film "Hundred Flowers" Festival Best Animation Film in 1980; the 2nd Manila International Film Festival Special Prize in 1983, and so on.

In the middle of the 1980s, the Shanghai Animation Film Studio created the classic animated feature film “金猴降妖” (The Golden Monkey Defeats a Demon), an adaptation of “西游记”. It won several prizes including Best Film -- Ministry of Radio, Film & Television (1985); the 6th Golden Rooster Award for Best Animation in 1986; and the Chicago International Children's Film Festival for the First Prize: Feature Film, Animation, in 1989.

At the end of the 1980s and the beginning of the 1990s, many outstanding animation films were produced. In 1986 to 1987, the Shanghai Animation Film Studio completed

a series of paper-cut animation films under the title “葫芦兄弟” (Calabash Brothers), and a series of animation films called “黑猫警长” (Black Cat Detective).

From 1985 to 1999, no more animation feature films were created in China until at the end of the century, the Shanghai Animation Film Studio produced “寶蓮灯” (Lotus Lantern).

In the 21st century, both the level of technology and the number of animations have shown a remarkable increase. The Shanghai Animation Film Studio published an animation film called “我为歌狂” (Music Up) with 52 episodes. The China International Television Corporation published five major animation films at a time. In 2005, Creative Power Entertaining published a series of animation films called “喜羊羊与灰大狼” (Pleasant Goat and Big Big Wolf). It was very successful and gained much recognition.

The major impact of the animation industry in China is related to the change in the country’s economy, from a command economy to an open market economy. After 1993, the government opened up the animation market and released control of animation production. The government stopped direct purchase of animation productions from the studios. The open market operation allowed the import of animation films from foreign countries. The local original productions had to face a serious challenge from the well-established competitors from Japan and the United States. The local original productions used to be fully subsidized by the government, so had never developed strategies to fill market demand. Moreover, all the local broadcasting channels were state-owned in China, and thus they never established any market structure which allowed them to operate in an open market economy. The local original animation production companies fell into very difficult situations. This adverse situation drove many experienced animation workers to move to work

in OEM companies.

In the last decade, the government put enormous effort into supporting the development of cultural and creative industries. A series of policies were put into place by the government to support local animation production. The objective of these policies was to enable the growth of the animation industry to reach the top level of the animation market. The policies included both financial support as well as protectionist measures to enable local animation producers to avoid facing intensive completion from foreign animation producers. The animation industry in China entered a period of fast growth and also initiated the rapid development of animation education after 2000.

2.5 Animation Education in China

China ran as a planned economy before 1993. Animation training was mainly conducted by the Shanghai Animation Film Studio. The studio nurtured and produced animators to support their own productions. It provided small scale training courses and apprenticeship at the studio. The lack of demand and small scale of production in original animation limited the growth of animation training. The animation industry remained small until the 1990s. The government opened up the animation market in 1993, causing foreign animation enterprises from Japan and the United States to move their animation production work to China. The rapid growth of demand for OEM work created a serious challenge to the local original animation production and also prevented the growth of animation education in China.

2.5.1 The Development of Animation Education

In line with the development of the animation industry, animation education in China also has a long history, starting from the early 20th century. In 1922, some famous art educators and painters, including 颜文樑, 胡粹 and 朱士杰, founded the Suzhou Summer Art School (苏州暑期美术学校) in Suzhou. The School later became the Suzhou Art and Design School (苏州美术专科学校), and also was one of the pioneers in offering animation education in China (Pan, 2012).

In 1936, Jiangsu Province established the Department of Film and Radio Broadcasting Education (電影播音教育專修科) in the Jiangsu Province's Institute of Education (江蘇省立教育學院). The Department offered an elective called "Cartoon Making", and Wan Guchan (萬古蟾) was the lecturer for the subject (Sun, 2009). This is considered to be the first animation subject offered in the formal education system.

As mentioned above, in the autumn of 1940, considering the opportunity for economic success in producing animation, Zhang Shankun (張善琨), general manager of the XinHua Film Company (新華影業公司), invited Wan Laiming (萬籟鳴) and Wan Guchan (萬古蟾) to set up a cartoon department to produce the feature-length animation film "Princess Iron Fan" (鐵扇公主). Owing to the shortage of skilled workers in this area, the two Wan brothers recruited some young people with foundation skills in drawing to undergo intensive training to make up the workforce. Gradually, they were taught character design, scene design, storyboarding and related animation techniques. The animation department of XinHua trained a total of 70 people, and they became the major workforce for the production of Princess Iron Fan (Sun, 2009). In 1941, Spirit Club (勵志社) joined with the Ministry of Education and the Central Film Studio (中央電影攝影場) to form the Education Film Club (教育電影畫片社). Qian Jiajun (錢家駿) was the head of the drawing department. He recruited 12 high school students and offered a one-year animation

training program for them to prepare for the production of the animation “生生不息” (Circle of Life).

Both the cartoon department of XinHua Film Company and the Education Film Club provided non-academic training for animation education. This type of vocational training in animation education offered an intensive yet focussed training in animation production. Vocational training program is still very popular in the current animation education. However, these two “big scale” animation training programs became the first vocational animation training courses in the history of China.

In 1947, Luo Yiwei (羅以威) financed the first private animation school, Nan Guo Animation College (南國動畫學院), both in Guangzhou and Hong Kong. This was the first privately run animation school in China.

In 1950, Qian Jiajun and the other associate animators were responsible to set up an animation production studio at the Suzhou Art and Design School. It was an experimental animation production studio and it also served for teaching (Pan, 2012). The studio had been commissioned to create films by the Shanghai Health Department, and made three promotional animation films, “防治白喉” (Prevention of Diphtheria), “病菌” (Germ), and “阿明的好習慣” (Good Habit of Ah Ming) (Sun, 2009). The Studio also offered the first education program major in animation studies in China. It was a two-year course of study, and two cohorts of students were recruited for the program. In 1952, the program was merged with activities at the Beijing Film School, and the program was suspended after the graduation of the students (Li, 2010). A total of 27 students graduated with an animation major. They were allocated work in the Shanghai Film Studio (上海電影製片廠), the August First Film Studio (八一電影製片廠) and the Shanghai Science and Education Film Studio (上海科學教育電影製片廠) (Sun, 2009).

In order to nurture film production talent to sustain the growth of the Shanghai film business, the Shanghai Film School (上海電影專科學校) was set up in 1959. The School also offered an animation major and the teachers were all experienced professionals from the Shanghai Film Studio, the Shanghai Animation Film Studio (上海美術電影製片廠) and the Shanghai Science and Education Film Studio (上海科學教育電影製片廠). The program provided structured training at post-secondary level in animation studies (Pan, 2012). Until the School closed in 1963, the animation program produced two cohorts of 31 graduates. All teachers and graduates moved on to work at the Shanghai Animation Film Studio (Li, 2010).

In 1960, the Shanghai Animation Film Studio joined the Huashan Art School (華山美術學校) in a vocational training program and produced a group of animators. This is considered as another pioneer program in vocational training (Li, 2010).

In 1965, the Beijing Film School started to offer an animation major. However, the program stopped because of the start of the Cultural Revolution in 1966 (Ge, 2008).

In 1977, the Beijing Film Academy resumed its enrollment of students. With support from the Shanghai Animation Film Studio, the Academy accepted the first cohort of bachelor degree students under the Department of Fine Art in 1978. However, the Academy only provided very limited support in the shape of facilities and teaching materials in the early period. The program gradually grew with the effort of the program team and support from foreign animation experts, and expanded teaching coverage from traditional hand-drawn animation to 3D animation (Ge, 2008).

In 1980, the Shanghai Animation Film Studio worked with Shanghai Huashan Middle School and offered the first professional animation training program. The program was a three-year training program and accepted 60 students. Moreover, the Studio also provided on-job training for staff and produced a new generation of young

animation workers for the development of the animation industry in China (Sun, 2009).

In 1989, the Shanghai Animation Film Studio started to provide a three-month short-term intensive training program to enhance animation skills of participants. It covered seven units of studies including both theory and practice. In 2000, the Department of Animation at the Beijing Film Academy was upgraded to a School of Animation, and it was the first animation school at that level in China.

The intensive support of the Government in developing cultural and creative industries in China made many OEM animation production companies start to develop their original animation productions. Some of the OEMs turned part of their production facilities over to producing original titles. Moreover, many new animation production houses were formed to develop their own titles. All these developments, as well as the support of the government in expanding animation education, created a sudden boom in animation education development in China.

In 2002, there were only seven higher education institutions which offered animation programs in China, namely Beijing Film Academy (北京電影學院), Communication University of China (中國傳媒大學), Jilin Animation Institute (吉林動畫學院), Nanjing Normal University (南京師範大學), Nanjing Arts Institute (南京藝術學院), Wuhan University of Technology (武漢理工大學) and Sichuan Fine Arts Institute (四川美術學院). However, by the end of 2006, the statistics from the Ministry of Education showed that a total of 130 higher education institutions were providing bachelor degree level animation education programs, and numerous animation training programs at a sub-degree level were available in China. The rapid growth of animation education started suddenly at this time, and momentum has not stopped. At the end of 2009, there were 1,279 higher education institutions providing 1,877

animation programs in China (Xiao, 2011).

2.5.2 Issues in Animation Education Development

In recent years, the rapid development of animation education showed success in producing thousands of graduates. However, lots of studies indicated that the rapid increase in the number of animation education programs created many problems. The major concerns were in the following three aspects.

Inadequate number of qualified teachers

One of the key concerns was the inadequacy of resources available to satisfy the rapid increase in the expansion of animation education programs. Owing to the historical development of the animation education system, there were only a few education institutes providing animation education in China. The booming demand for animation educators over the last ten years created a major shortage of qualified animation teachers (Wang, 2012)

Animation is a discipline that requires a mix of theoretical knowledge and practical experience in animation design and production. A qualified teacher should possess both academic understanding and practical knowhow in animation work, as well as having good teaching skills. However, the rushed development of new animation programs as well as the over-expansion of student intake in the last few years, created an insufficient supply of qualified teachers. Fresh bachelor graduates from animation disciplines might have been employed to take up teaching posts in the newly-opened animation programs. Moreover, they might be the only teachers with an animation background, and the other senior teaching staff were mostly from other disciplines. Without proper support from an experienced and qualified animation faculty, it was

very difficult for these programs to develop in a healthy way (Li, 2010).

Owing to the rapid development of new programs, some of the higher institutes could not hire adequately qualified teachers and they could only allow teachers from other disciplines to take up part of the teaching load. The result was that some required subjects could not be offered, due to a lack of expertise. Sometimes, essential animation subjects were replaced by subjects that could be supported by existing resources. However, the substituted subjects might not really address the program objective of the program (Sun, 2005).

Curriculum does not match with the market demand

Owing to the intensive support from the Government in developing new animation programs, many higher education institutes implemented animation programs irrespective of whether they had the corresponding resources or not. Moreover, there was no agreed standard in the animation curriculum, some of the program management might not have adequate knowledge and experience in animation education, and the developed program structures and program objectives were not well defined (Sun, 2008). On the other hand, some of the higher institutes developed their own curriculum, based on their existing resources instead of market demand (Xiao, 2011).

There were major claims from animation companies that animation graduates could not match with their expectations (Xiao, 2011). Due to the high mobility of animation workers, most of the animation production companies did not want to provide in-house training to the fresh graduates. It was because they were not sure the trained-up workers would stay working at their companies (Sun, 2008). So most of them preferred to recruit animators with sufficient skill to start working immediately. Due

to the above reasons in curriculum design, a large percentage of graduates might not satisfy these requirements.

On the contrary, some scholars claimed (Sun, 2005) that higher education institutes should not only provide vocational training, but also high level intellectual knowledge to the animation students. Most of the animation programs focused on practical animation skill training, and sometimes they neglected related theoretical subjects, like storytelling and animation history. These subjects should contribute their overall competence to be animation film makers and equip them with essential intellectual knowledge for further development.

Focus or diversify in discipline knowledge

Some scholars (Wang, 2012) indicated that some of the animation programs were not specifically focused on the study of animation. They claimed that these programs were too broad in the chosen area of studies and the graduates they produced could not take up animation work independently. This phenomenon might be due to the fact that programs featured inadequately qualified teachers, which caused them to substitute related subjects in place of animation subjects. On the other hand, the program might purposely be organized in this way to allow a wider choice of job opportunities for their graduates (Li. 2010).

Since animation companies would only recruit skillful animators, some higher education institutes might, due to their own limited resources, fail to provide such training to their students, and they might identify alternative job opportunities for their graduates (Xiao, 2011) Recently, there has been a growing demand for staff in all sorts of multimedia-related jobs, including game art design, desktop publishing and web production work. These markets demanded employees with substantial

cross-disciplinary knowledge that included discipline-specific knowledge in animation (Li, 2010). So cross-disciplinary knowledge might not necessary be bad to programs with alternative objectives.

2.5.3 Creativity Research on Animation Education in China

In order to further verify the proposed research is valuable, I conducted a search with the keyword "動漫教育" (animation education) in the China Journal Full-text Database. The China Journal Full-text Database is the most comprehensive full-text database of Chinese Journals. The database returned 423 articles as listed in Appendix 1. Based on the title of the article, I further selected 201 articles (Appendix 1, underlined articles) from the 423 articles for a closer study of their content. I found many articles focused on various problems in animation education that I have discussed in the previous section; however no article covered the fostering of creativity in animation education.

I further conducted a keyword count for a few Chinese words that related to creativity or innovation, and I received the following results.

Table 1. 1 Creativity Keywords Count

Chinese keyword	Literal meaning in Chinese	The count of the word
创意	Creative idea	289
创新	Innovation	370
创造力	Creativity	89
新意	New idea	9
原创	Original	256

Based on the above number of counts for the keyword “创意” and “创新”, the frequency for both words were very high, for they come from 201 articles. Almost every article might feature one or other of these keywords. Then why there is no article talked about fostering creativity in animation education, if they all share a common theme in animation education (動漫教育)?

I found a report on “动画教育面臨辦學困難” (Problems encountered in animation education) from the China Animation Yearbook 2010. This report is within the section that focuses on animation education development in higher education in China. The report mainly focuses on a survey of 100 animation education institutes from 29 provinces in China. The report provided research results on issues and problems encountered by the animation education institutes. It indicated that animation education institutes are suffering from a serious shortage of high level faculty and a lack of supporting materials and facilities for animation education.

The report further listed 12 categories of problems identified in animation education. The 12 categories, prioritized in the order of importance, were: (1) lack of high level professional faculty, (2) teachers’ lack of practical industry experience, (3) recession in the animation industry, (4) low salaries of the faculty which prohibited them from focusing on teaching, (5) inadequate professional facilities, (6) the weakness of practical study in the curriculum, (7) lack of communication with the industry, (8) lack of teaching materials like text books and audio visual materials, (9) inadequate support from the institute, (10) substandard quality of the applicants, (11) the fact that the program and curriculum structure are not well planned, and (12) the inadequacy of teaching space. Among the 12 issues identified, none address the issues of creativity nurturing. It seems that the animation educators do not see

fostering creativity in animation education as a problem to them.

However, in the same report it also showed another survey on the “动画专业学生需要的能力得分排序” (Ranking of the ability required for the animation major students). It listed 13 categories of abilities and the priority of importance were: (1) creative thinking, (2) professional animation knowledge, (3) drawing skills, (4) cultural understanding, (5) aesthetic ability, (6) computer skills, (7) ability to acquire knowledge, (8) team work ability, (9) independent work ability, (10) expression and communication ability, (11) ability to adapt to the environment, (12) organization management ability, and (13) foreign language level. It was a surprise that “creative thinking” was ranked at the top of the list and the average score was 11.73, which was far higher than the next item on the list, “professional animation knowledge”, with a score of 9.96 (Appendix 2).

From the above survey, I notice that the animation educators really see the importance of creative thinking and consider that as a key component for animation education. The results are actually in line with the findings of the above keyword count in 201 articles on animation education.

I compared the two results from the report, and I can conclude that in animation education, creative thinking is considered important, yet the educators do not see nurturing creative thinking as a problem in animation education. However the author of the report further indicated explicitly that she was doubtful about how animation educators nurture “creative thinking” in the current unstructured animation education system (Li, 2010). This comment showed a major dilemma in animation education in the nurturing of creativity. Most animation educators considered creativity important, but there was no research which has attempted to take a closer

look at this issue. This exposes a knowledge gap in this particular area, which this study aims to bridge.

2.6 Chapter Summary

The strong economic return produced by the creative industries has made many countries work to develop their creative industries strategies. China realigned the cultural industries strategies and renamed the sector as cultural and creative industries, in order to benefit from the fast economic growth and pollution free development of the sector. The animation industry is one of the key sectors of the cultural and creative industries which have shown fast growth in the past decade. As rapid expansion of the animation industry continued, animation education also received substantial support from the government. Many animation education programs were established in the past few years. Many scholars suggested that the rapid development of animation education in China introduced many issues and problems. A recent survey report published in the China Animation Yearbook 2010 further identified the problems that animation educators encountered. In the ranking of the ability required for the animation major students, it indicated that the top priority in the view of educators was “creative thinking”. However, the author of the report explicitly indicated that she was doubtful about the nurturing of “creative thinking” in the current animation education system. This exposes a knowledge gap in fostering creativity in the animation education.

Chapter 3 Teaching for Creativity

3.1 Introduction and Overview

Many scholars suggest that the current education systems and approaches cannot meet the demands of the fast changing economy and society. They feel that education institutes should put extra effort into promoting creativity education. However creativity is a relatively complex concept, and successfully fostering creativity in education demands a clear conception of what creativity and creativity education are. This chapter starts with the study of how people define creativity and then goes on to a detailed description of different approaches of creativity researches. The chapter further traces the development of creativity education and indicates different approaches for the teaching of creativity. The Investment Theory of Creativity, which is a confluence of theories contributed by various scholars, is introduced at the end of the chapter and serves as the conceptual model for this research.

3.2 Creativity

Research on creativity has only a short history and there is no commonly accepted approach to deal with this topic. Moreover, different approaches on the definitions, conceptualizations, domains and disciplines make the study more complex. In order

to understand the key theories of the study of creativity, we should understand the different elements that contribute to the construction of various categories of creativity theories.

3.2.1 Definition of Creativity

Creativity is difficult to define. Czikszentmihalyi described it as follows: “Creativity was recognized to be a complex, contested concept that is poorly theorized, as acknowledged in many accounts” (1999:313). Guilford (1971) saw “creativity” as an ambiguous word. Child (1973) suggested that there does not exist a clear, unambiguous and widely accepted definition of creativity. Stein (1953) proposed that “creation” is an activity which brings some things which are “new” and which have “utility”. Sternberg and Williams (1996) also had a similar thought, that creative ideas are both novel and valuable. Boden defined creativity is “the ability to come up with ideas that are new, surprising, and valuable” (Boden, 2004:1). Most of the scholars agreed that creativity involves thinking that is aimed at producing ideas or products that are relatively novel and compelling. (Kaufman & Sternberg, 2006).

The National Advisory Committee on Creative and Cultural Education (NACCCE) in the UK defined creativity as “imaginative activity fashioned so as to produce outcomes that are both original and of value” (NACCCE, 1999:30). The definition of creativity proposed by the NACCCE was based on the understanding of the nature of creative processes and this indicative definition aimed to serve for education purposes. Creative processes always involve (1) thinking or behaving imaginatively; (2) the imaginative activity is purposeful; (3) the activity must generate something original and (4) the outcomes must be of value to the purpose (NACCCE, 1999). As proposed by Runco & Jaeger (2012), Stein (1953) was the first to offer the standard definition

in an entirely unambiguous way, and Stein's standard definition is completely adequate for general purposes.

3.2.2 Study Approaches of Creativity

There are two common but different approaches towards the study of creativity. The basic principle of the scientifically-oriented approach is to study the empirical reality of creative phenomena and use traditional scientific standards to find the objective truth through conducting rigorous tests on a hypothesis. While another is the metaphorically-oriented approach, which does not aim to meet the traditional standard of research in generating grand theories that have wide applicability, but provides a speculative stance on phenomena and a focus on provoking new understandings and possibilities.

The adoption of the metaphorical approach mainly considers creativity study as an underdeveloped discipline. When extreme empiricism dominates the study, it is likely that the development of creativity research might just focus on the observable, but be unable to address conjecture beyond that which is directly observable, and bigger potential and possibilities that have not yet been experienced.

3.2.3 Categories of Creative Magnitude

Creativity can be realized as creative expression (a product) or creative experience. These creative outcomes are different in creative magnitudes as well as methods of measurement. Differentiating the categories of creative magnitude helps us to understand the various approaches of creativity research.

The categories of creative magnitude address the differences of internal and external frames of reference of creativity. They are commonly divided into four categories,

namely (1) Big-C, (2) Pro-c, (3) Small-c, and (4) Mini-c (Merrotsy, 2013)

1. Big-C refers to the eminent creative expressions that are generally recognized. Works of great poetry or substantial invention are considered to be in this category. These are eminent levels of creative expressions, like Dickinson's Poetry, Coltrane's Jazz or Freud's Psychology.
2. Pro-c refers to creative expressions that exist at a professional level but do not yet attain, or never attains, the eminent level (Kaufman & Beghetto, 2009).
3. Small-c refers to the objective creativity of everyday life. These creative expressions and experiences can be accessible in our daily life like creating a novel recipe that produces something which is enjoyed by family and friends (Richards, 2007).
4. Mini-c refers to the more subjective creativity of everyday life including personal, internal, or mental forms of creativity.

3.2.4 Six Ps of Creativity

Six Ps is a development extension from the widely known 4Ps model. This model of creativity places the emphasis on the particular aspect of creativity. It includes: (1) Process, (2) Product, (3) Person (or personality), (4) Place (or press), (5) Persuasion, and (6) Potential.

It is based on the assumption that creativity can be defined as a holistic multi-dimensional concept. Rhodes (1961) developed a framework for a unifying approach to creativity. He studied 56 different definitions that were preset in the literature and found those definitions clustered around four overlapping and interrelated strands. Those strands were the creative person, the creative process, the creative product,

and the creative press (environment). Isaksen (1987) extended Rhodes's approach and introduced the concept of 4 Ps.

Person theories study creative persons and their personalities that might be indicative or contraindicative of creative potential. Some common traits which have been identified are intrinsic motivation (Hennessey & Amabile, 1988), wide interests (Strenberg, 2006), openness to experience, and autonomy (Torrance, 1962). Moreover, a recent study shows that personality is considered as an influence on creativity rather than directly leading to creativity (Kozbelt, Beghetto and Runco, 2010).

Product theories study highly creative individuals through their eminent creative expressions like works of art, inventions, publications, musical compositions etc. It is the most objective approach with which to study creativity. However, the drawback is that it cannot show the relationships between the process and the product, and it does not help to identify creative potential for not-yet-successful people.

Process theories are theories that focus on the creative process. They aim to understand the nature of the mental mechanisms that occur when a person is engaged in creative thinking or creative activity (Simonton, 1984). This line of study mainly investigates different stages of processing or particular mechanisms as the components of creative thought. For example, Graham Wallas (1926) proposed four steps for a problem-solving process that includes preparation, incubation, illumination and evaluation.

Place (or press) theories focus on how interactions between persons and environments affect creative personality. Some general tendencies indicate that "creativity tends to flourish when there are opportunities for exploration and independent work, and when originality is supported and valued" (Amabile, 1990).

Thurston (1962) suggested that creativity can be encouraged or discouraged through environmental conditions. Brower's (1961) study reveals that individuals have ideas but they are reluctant to express them. Sternberg and Williams (1996) also confirmed that fostering creativity demands a criticism-free environment.

Persuasion theories consider creative persons as people who are persuasive and like to change the way others think. The assumption is based on the social perspective and attribution theory of the creativity and system model. The theory only considers the influence of an individual to the existing domain direction as creative, rather than "everyday originality".

Potential theory tries to further categorize the established theories into creative performances and creative potentials. Creative performances include product and persuasive theories, and other theories that focus on creative behavior. Creative potentials include personality and place and other theories that study subjective process.

3.2.5 Major Approaches on Creativity Research

The major categories of theories have been identified to help in understanding the development of creativity study, namely (1) Developmental, (2) Psychometric, (3) Economic, (4) Stage and Componential Process, (5) Cognitive, (6) Problem-Solving and Expertise-Based, (7) Problem Finding, (8) Evolutionary, (9) Typological, and (10) Systems.

Developmental theories are primarily concerned with how creativity develops over time. It mainly emphasizes the person, place and potential aspects of creativity, and ranges from mini-c to Pro-c. Examples are the study of lives and family backgrounds of eminent creative persons (Helson, 1999

; Subotinik & Arnold, 1996; Albert & Runco, 1989).

Psychometric theories focus on the reliability and validity of measurement in creativity. These theories emphasize the objectivity of measurement in "product" and range from little-c to Big-C creativity (Guildford, 1966).

Economic theories consider ideation and behavior influenced by market forces. They employ economic theories and investment theories to explain creative behavior. One of the prediction in these theories see people with high levels of expertise might not be as flexible as the people who invest less in that particular discipline about alternative (Runenson & Runco, 1992; Florida, 2002; Sternberg & Libart, 1992).

Stage and Componential Process theories emphasize studying the structure and nature of the creative process in terms of stages. The process can be linear or recursive. One of the examples of these theories is making problem-solving cycles by breaking down the creativity process into *problem finding, problem identification* and *problem definition* (Wallas, 1926). Another well-known componential model is the *managerial practice for intrinsic motivation* by Amabile (1999)

Cognitive theories focus on the creative process and person. The process emphasizes the role of cognitive mechanisms as a basis of creative thought, and the person emphasizes individual differences in such mechanisms. Key concepts used are remote association, divergent and convergent thinking, conceptual combination and expansion (Mednick, 1962; Finke, Ward & Smith, 1992).

Problem-Solving and Expertise Based theories focus on the problem-solving process and expert knowledge. These theories mainly emphasize domain-specific expertise as a necessary condition for creative achievement. One of the studies in this category indicates that ill-defined problems will help in encouraging creativity, especially as it

encourages people to not only resolve problems, but also helps in formulating problems (Wesiberg, 1999; Simon1989).

Problem Finding theories address the inadequacy of problem-solving theories by noting that creativity does not always come from solving pre-specified problems. Creative works, like the making of a painting, do not have a pre-specified set of problems. Problem Finding theories focus on the creative person instead of the process, and emphasize the proactivity of creative people engaging in the exploratory process of problem identification (Getzels & Csikzsentmihalyi, 1976; Runco, 1994).

Evolutionary theories employ ideas from evolutionary biology. They emphasize the two-stage model and claim that eminent creativity actually is a form of evolution, a process of blind generation and selective retention (Simonton, 1988).

Typological theories are unified theories based on classifying via typologies. They recognize creators vary along key individual differences which are related in both macro-level and micro-level factors. The key concepts include categories of creators, seekers versus finders and integrated multiple levels of analysis (Galenson, 2001)

System theories emphasize the fact that creativity comes from a complex system of interacting and interrelated factors. Unlike the other theories described above, system theories take a broad and qualitative contextual approach to creativity. Most of all, system theories emphasize the complexity of the system that allows maximum freedom to understand creativity (Csikszentmihalyi, 1988; Sawyer, 2006).

3.3 Creativity Education

The British government set up a taskforce in 1998 to review creative and cultural education. The result was a report, All Our Futures: Creativity, Culture and Education,

that led to an intensive debate on creativity education. Sir Ken Robinson, chairman of the taskforce, challenged the traditional education system, saying: "The educational reforms really needed now are actually being held back by the attitudes to education that many policymakers learned when they went to school – 20, 30, 40 years ago. Many seem to believe the way to the future is simply to do better than what we did in the past. The truth is we need to do something completely different for today's students" (2005:2).

The early elitist view believes that creativity is a gift and can only be found in a few individuals. Most educational researchers and theorists participate in promoting creativity reject that elitist view. They believe everybody has a certain potential to be creative (Brinkman, 2010). It is the responsibility of the school to foster the fullest development of this potential (Cropley, 2001; Downing, 1997; Starko, 2010; Craft, 2005).

3.3.1 Historical Development of Creativity Education

The period of creativity in the 1950s was focused on the psychological determinants of the individual on genius and giftedness (Craft et al, 2001). As claimed by Rhyammar and Brolin (1999), personality, cognition and how to stimulate creativity were the three main developments in creativity research from the 1950s. In 1970s, the creativity study research focus was moved away from product outcomes to things connected with imaginativeness (Elliot, 1971). From the 1980s, the research in creativity moved onwards to study how social structures affect individual creativity, and how social psychology and systems theory were taken into account. During the 1990s, the development of creativity research in social psychology became more comprehensive, and creativity research extended to focus more on the creativity of

ordinary people within the education system (Craft et al, 2001). In this period, the methodologies used in creativity research were also changed. Ethnographic and qualitative approaches that focus on the actual site of operation and practice were used instead of the positivist and large-scale studies (Craft et al, 2001).

The report, All Our Future: Creativity, Culture and Education, is a response to the 1997 Government White Paper Excellence in Schools. The Paper emphasizes education as a vital investment in "human capital" (NACCCE, 1999) and it indicates the need to foster motivation and esteem in schools. The study was initiated by some enthusiastic educators after they saw the lack of creativity in the education system, and they proposed to the government that an investigation should be made into promoting creativity in the education system (Joubert, 2001). The National Advisory Committee on Creative and Cultural Education (NACCCE) in the UK was established by the joint effort of the Secretary of State for Education and Employment and the Secretary of State for Culture, Media and Sport in 1998. The function of the Committee was "to make recommendations to the Secretaries of State on the creative and cultural development of young people through formal and informal education: to take stock of current provision and to make proposals for principles, polices and practice" (NACCCE, 1999:4). Although the NACCCE was funded by the Government, it was actually treated as an independent advisory body. The advantage of this arrangement was they did not work under any political interference, but the drawback was their recommendations might not be turned into government policy (Joubert, 2001).

The Report, by the National Advisory Committee on Creative and Cultural Education, recognized that a national strategy for creative and cultural education was essential to raising your people's abilities, expectations and cohesion. It defined creative education as "forms of education that develop young people's capacities for original

ideas and action" (NACCCE, 1999:5). The report developed five main themes, namely (1) The Challenge for Education; (2) Creative Potential; (3) Freedom and Control; (4) Cultural Understanding; (5) A Systematic Approach. What the report emphasized were that new priorities in education were needed in order to meet the new challenges. Success in creative education demanded a balance between teaching knowledge and skills, and encouraging innovation. Creative education should not be treated as a subject in the curriculum; it should be promoted by a systemic strategy that was embedded in the curriculum design, teaching methods and assessments (NACCCE, 1999).

3.3.2 The Importance of Creativity in Education

We are living in fast-changing times. Knowledge and skills are becoming obsolete much faster than in the past. Education institutes should not limit themselves to knowledge transfer, but must also promote flexibility and openness for our students. Fostering creativity can help our students meet future challenges (Cropley, 2001). The business community considered higher priorities should be given to creative abilities, teamwork, social skills and power of communications in education. The employer demands people who "can adapt, see connections, innovate, communicate and work with others" (NACCCE, 1999:14). Moreover, fostering creativity does not conflict with traditional education. Some scholars see creativity seeming to supplement conventional intelligence in promoting school performance (Sternberg & Lubart, 1995).

In the NACCCE report, it indicated that education worldwide faced unprecedented challenges in economic, technological, social and personal areas. Rapid changes in the nature of work from traditional industries to knowledge and information societies,

call for new types of workers. The expanding creative industries also have a demand for young people who can generate new ideas. The new pattern of work has a demand for young people to switch occupation and location much more often than the past. The rapid development of technology has already dominated all areas of our lives. It offers tremendous opportunities for people to develop and transform, but on the other hand it might also be harmful in social, emotional and imaginative development. Both economic and technological changes are transforming the social landscape. These changes will affect the balance of relationships and responsibilities between generations. Traditional academic quality will not satisfy the demands of employers who emphasize powers of creativity, of communication, of empathy and adaptability. Creative abilities are needed to meet the challenges of economic, technological, social and personal development (1999).

3.3.3 Education Institutes Inhibit Creativity

Conventional education systems often hinder the development of creativity. The NACCCE reported that many of the inquired contributors suggested that "current priorities and pressures in education inhibit the creative abilities of young people and of those who teach them" (NACCCE, 1999:8). Teachers always expect a single best answer for every problem (Felder, 1988). The education system assumes teachers know all the answers and their duty is to pass these on to the students and save the students' from making the effort to seek answers for themselves (Cropley, 2001). Moreover, the education system also over-emphasizes the acquiring of knowledge (Anderson, 1993; Frederiksen & Collins, 1996) but lacks emphasis on creative thinking skills (Resnick, 1987). Teachers still associate creativity teaching as not being a general discipline in education, but as something only associated with the arts. Our

current education system was built upon the needs of the nineteenth century, a time when industrialization dominated the world. However, we have already moved into a new century and we are facing new challenges that demand a different set of abilities (NACCCE, 1999).

3.3.4 Teachers' Conception of Creativity

Many educators see fostering creativity in the classroom is very difficult. As some studies indicated, teachers prefer expected student responses in the class discussion instead of unexpected student responses that might disturb class progress (Beghetto, 2007). Some studies also found that sometimes teachers prefer less creative students for the reason that they feel creativity is associated with nonconformity and disruptive behavior (Cropley, 1992; Dawson, 1997; Scott, 1999). Moreover, in one study, teachers claimed they enjoyed working with creative students but when they responded to the details that related to creative attitudes, they showed their dislike of the type of attributes that normally were affiliated with creative students (Westby & Dawson, 1995). All the above studies actually show that teachers might not have a good conception of creativity (Sternberg & Lubart, 1999; Osborne, 2003). As suggested by many scholars (Jackson et al, 2006), if teachers do not have a clear conception of creativity, it is very difficult for them to fostering creativity in their teaching.

A study was carried out by Margaret Edwards, Chris McGlodrick and Martin Oliver (2006) in exploring the teachers' perspectives on creativity at Liverpool John Moores University and University College London in the period 2002 to 2004. The research used a semi-structured approach and interviewed 32 academic staff from a range of disciplines and experiences. The general conclusions were that creativity was not a

well theorized concept, though some participants could indicate their understanding of the complexity of this concept, most of the others had problems and confusion with this concept (2006).

Another study also conducted in the same period in the above universities mentioned with the participation of 25 students from various disciplines. Students were invited to participate in interviews and they were asked to explain their thoughts about creativity and to describe creative people or things. The result of the study showed that students had difficulty in explaining what they thought creativity was, and they were incapable of providing a coherent and integrated concept explaining the term creativity (Edwards, McGoldrick & Oliver, 2006).

The above studies actually show that teachers and students generally having a confused conception of creativity. Although some of the participants might show a better understanding of the nature of creativity, the overall indications were that participants could not give a clear and coherent explanation of what creativity was.

3.3.5 Creativity and Culture

Creativity is influenced by various factors. Apart from the personal domain, creativity is also affected by other social factors and culture (Kim, 2007). Culture can be considered as a set of conventionalized routines that shape the social behaviors of individuals in a society (Chiu & Hong, 2006). People might consider creativity is only concern with individual, it always works in eminent creativity (Big-C) but it does not always work in other creativity including everyday creativity. Most of the creative achievement are inspired or developed from the ideas or achievement of other people. It might be from books, theories, design or other accomplishments. This kind of inspiration or influence might extend to the culture that one lives. So creative

development is inevasible related to cultural development (NACCCE, 1999; Lubart, 2010)

As suggested by Lubart, “cultural difference may exit in the conception of creativity” (2010:266). Although many research results indicated that some common components of creativity were identified like novelty and appropriateness of a creative idea or product, both novelty and appropriateness are subject to cultural values in various contexts (Paletz & Peng, 2008). For example, compare to Western culture, Asian culture prefer collectivism instead of individualism, this might construct a different meaning to the Asian in understanding creativity compare to a Western (Kim et al, 2011). As in the study of Niu and Sternberg (2002) showed, creative individuals with different cultural backgrounds shared characteristics in originality, imagination, intelligence, independence, and extroversion. However, creative individuals with Western cultural background more favored intrapersonal and aesthetic aspects of creativity while the creative individuals with Eastern cultural background emphasized more on social and moral aspects of creativity. In a review on cross-cultural comparison of teachers’ conceptualizations of creativity (Zhou et al, 2013), it reported that Chinese teachers inclined to link creativity with academic performance which always saw as a result of intelligence.

3.3.6 Creative Teaching and Teaching for Creativity

One of the issues that the NACCCE Report pointed out is the difference between “teaching for creativity” and “creative teaching”. Craft (2001) said that “creative teaching” mainly suggested an “effective pedagogy” while the consequences of “teaching for creativity” was the empowerment of students through creativity. The report also indicated that “teaching for creativity” was the main focus, rather than

"creative teaching".

The NACCCE Report defined creative teaching as "using imaginative approaches to make learning more interesting and effective" (1999:89), while teaching for creativity is defined as "forms of teaching that are intended to develop young people's own creative thinking or behavior" (Jeffrey and Craft, 2004:1). Although the NACCCCE Report emphasized the difference between teaching for creativity and creative teaching in education, it also indicated that "teaching for creativity involves teaching creatively" (1999:90). Jeffrey and Craft (2004) also mentioned the close relationship of these two factors by showing that many researches had shown the fostering of creativity through creative pedagogical approaches (Joubert, 2001).

3.3.7 Different Approaches on Teaching for Creativity

Many educators and scholars proposed different methods for fostering creativity. These methods vary in their approaches to the question and in the level of nurturing of creativity achieved.

Joubert described five key concepts for classroom pedagogy, namely, using imagination, a fashioning process, pursuing purposes, being original, and judging value.

Using imagination: Joubert described imagination is a natural born ability of children. However, the formal structure of schooling always prevented them from retaining this natural power. To imagine something might mean creating some kind of mental image, picture or sound etc. However, imagination should not be understood as producing novel mental representations only. As the NACCCE report said: "Imaginative activity is the process of generating something original … is a form of

mental play … to expand the possibilities of a given situation; to look at it afresh or from a new perspective, envisaging alternatives to the routine or expected in any given task" (NACCCE, 1999:31). So what Joubert considered to be important in imagination was "principally to do with seeing new or other possibilities" (Joubert, 2001:18). It might mean the power to look at ordinary situations with a novel perspectives. These kind of creative insights could be achieved by combining and reinterpreting existing ideas in unexpected ways, or making unusual connections with ideas or objects like applying ideas in a rarely associated areas (NACCCE, 1999).

A fashioning process: Joubert considered that "creativity is an active process of fashionable, shaping, moulding, refining and managing the creative idea or activity" (2001:19), so we should give children opportunity in developing and practicing their creative potential actively.

Pursuing purposes: Joubert suggested creativity can be considered as applied imagination and the ultimate purpose should be generating some kind of tangible outcomes. The purpose of the creative activity might evolve owing to some new ideas or possibilities being identified, but it always worked toward a certain goal in the course of evolvement.

Being original: Joubert indicated that people always considered they were not creative because they could not generate original ideas or work. She considered that this might be a misconception of what originality should be. Originality could be divided into three categories, namely (1) historic, (2) relative and (3) individual. Historic originality meant those works that were uniquely original to the world. Works like a Beethoven symphony or a theory by Einstein belonged to this category. Relative originality is a factor which considers works as being original in relation to that of a particular peer group. Individual originality look at one's work by comparing it to

one's previous work. The work would be considered as original if it was new compared to the past work. She suggested all three categories of originality were important, but individual originality was particularly important in education. By encouraging individual originality, students would find their own challenge in achieving originality and prevented a mismatch within their creativity development.

Judging value: For work to be classified as creative, it needs to be both novel and valuable. So Joubert claimed that a highly original idea or work can only be called creative if it serves the intended outcomes. In the other word, "creative thinking involves some critical thinking to evaluate which ideas work and which do not" (2001:20). She suggested students should learn critical judgement to improve self-evaluation and creativity.

The NACCCE (1999) report suggested three related tasks in teaching for creativity, namely encouraging, identifying and fostering.

Encouraging: The NACCCE report indicated that "the first task in teaching for creativity in any field is to encourage young people to believe in their creative potential" (1999:104). It is commonly believed that highly creative people possess positive self-image that allow them to be motivated, to make independent judgements, to take risks, to be persistent and to be resilient in the face of adversity and failure. Teachers should use extrinsic motivation methods to help students develop an interest in their creative strengths; the encouragements and rewards received by the students will further develop into intrinsic motivation that sustains the growth of creativity. Creative success will only be achieved if students are willing to take risks in their course of development. Teachers have to cultivate the students' risk taking behavior and independent judgement to realize this achievement.

Students always get frustrated and give up when they encounter failure. Teachers should convince them that there is more than one way to solve a problem or interpret a situation, and they might find a way out if they can persevere and be flexible in their work. Teachers should build and cultivate these beliefs and attributes in the students in teaching for creativity practice.

Identifying: Since each individual has his or her own creative capacities, teachers have to help students identify their creative strengths and further cultivate them to become intrinsic motivations. Teachers should also let students understand how some transferrable skills like problem-solving, self-organization and divergent thinking skills that they learnt from one domain, can be used in other domains.

Fostering: Learning is a process of discovery. Allowing students to exercise their creative potential through the process of being creative should be the best way to foster creativity in students. Our education system is largely based on knowledge acquiring; by teaching for creativity, teachers could develop experimental activities for students which help them to recognize various creative attributes like being willing to take risks and make mistakes, a sense of excitement and delayed skepticism, and encourage generative thought by preventing immediate criticism, and by the use of imagination, originality, curiosity and questioning.

Other scholars suggested different approaches to teaching for creativity. Candy, Crebert and O'Leary (1994) consider that creative learners should possess qualities of: (1) an inquiring mind with curiosity, and (2) initiative in learning. Although the creative learners might possess expert knowledge in a particular domain, they should also maintain a broad vision of other disciplines. In order to allow creative learners to apply knowledge in novel situation, they should also focus on "deep" learning. Gruen

and Scandura (1986) emphasized the teaching of divergent thinking in school. It would motivate students in generating new ideas and solutions. While Peldhusen and Goh (1995) also shared a similar idea, and suggested that one could enhance students' creativity by motivating students to seek new ideas and recognize novel approaches for problem-solving. Clapham (1997) suggested several attributes that could help foster creativity in education. The list covered thinking skills, attitudes, motivation and self-image. The creative attributes include: (1) the acquisition of positive attitudes to creativity and creative performance; (2) the motivation to be creative; (3) the perception of oneself as capable of being creative; (4) a reduction of anxiety about creativity and (5) to experience a positive mood in problem-solving situations. Bligh (1998) claimed that new teaching formats and approaches would be needed to promote higher-level conceptual skills. The current lecture type classes are relatively ineffective for changing attitudes and are not suitable for problem-solving learning. Moreover, the current teaching approaches in university education always teach in fragmented segments of content, and prevent students from applying knowledge across disciplines (Candy, Crenert and O'Leary, 1994). Barr and Tagg (1995) also suggested a paradigm shift of teaching approaches from instruction teaching to inquiry based learning in order to enhance teaching for creativity.

3.4 Conceptual Framework

In view of the theories discussed in the previous chapters, Sternberg's confluence theory provides a comprehensive and practical framework for enhancing creativity. This theoretical framework has been proven to be successful and is also useful in education to support teaching for creativity (Sternberg, 2003). Robert Sternberg is a

renowned psychologist. He is currently Professor of Human Development at Cornell University. He was the former president of the University of Wyoming and Dean of Arts and Science at Tufts University. He has also served as the President of the American Psychological Association. His confluence theory of creativity indicates that creativity is a compound of various creative elements, and these elements influence each other in constructing the creativity of an individual. His theory is a confluence of theories contributed by various scholars, but it builds on a foundation of his "Investment Theory of Creativity." He points out that creativity is not only some kind of ability, but also a "decision" that supports the practice of creativity (Sternberg, 2006). Joubert also shares the same thought that to be creative, "you must apply yourself to the creative process and you must want to find a solution or a new perspective to a problem or situation" (2001:19).

3.4.1 Investment Theory of Creativity

The core concept of the Investment Theory of Creativity is "buy low and sell high" (Sternberg, 2006). Creative people can identify potential ideas that are not recognized and appreciated by people, and persuade people of the value of these concepts. People do not recognize the value of these ideas in the beginning, and they even might challenge the value of them. Creative people will not hesitate to meet these challenges and their persistence will convince people of the value of these ideas finally. Starting from identifying unrecognized and valueless ideas to successfully convincing others of the values of these ideas, creative people possess the confidence of defying the crowd and have the practical ability to convince others of their beliefs. These are the core concepts of the investment theory of creativity.

According to the Investment Theory of Creativity, three specific abilities are needed

to generate creative ideas or products. They are synthetic ability, analytical ability and practical ability. Synthetic ability allows us to generate novel ideas. It enables us to connect different things effectively and generate new ideas. Analytical ability is a kind of critical thinking ability. It enables us to make appropriate analysis of ideas and judge the effectiveness of these ideas. By possessing the analytical ability, it helps us to judge which novel ideas is more appropriate to pursue.

However, ideas which are only novel and appropriate might still not good enough to be successful. We still need the practical ability to promote these ideas. As mentioned in the Investment Theory of Creativity in the previous paragraphs, real creative ideas normally would not be accepted by people in the first instance. Without a strong practical ability that can defy crowd sentiment and convince people of the value of these not yet recognized potential ideas, creative ideas will never be recognized and appreciated by others. So a successful creative person should possess these three abilities. Sternberg has suggested various ways to enhance these abilities in a number of his studies. By carefully rearranging his suggestion, we can consolidate four major categories of elements that can help in nurturing students' creativity in our education system. They are: Creative Thinking Style, Independent Personality, Intrinsic Motivation and Supporting Environment.

3.4.2 Creative Thinking Style

The NACCCE report suggested "Four Features of Creativity", with the use of the imagination as the first feature in the list. In the NACCCE report, imagination is not only the mental representation of some novel ideas or concepts, but "the process of generating something original: providing an alternative to the expected, the conventional, or the routine" (1999:31). It is a process or thought, but on the other

hand, it is also a kind of behavior or preference of thinking style that combines or reinterprets existing ideas in unusual ways. Creative thinking style means knowing the preferred ways of thinking and making a decision to think in a new way (Steinberg, 1999). Most of all, it does not concern itself with the ability to think in a new way, but with whether a decision is made to pursue thinking in a new way.

Creative activity is a highly dynamic process. Although this activity normally has an objective to pursue, it often changes as new ideas or possibilities are noticed. Sometimes students run into certain problems that they cannot solve. They are stuck in this problem and the situation is just like a dead end. However if they can look at the problem from some other perspectives, they might have a different understanding of the problem. By "**Redefining Problems**", students can come up with alternative solutions to problems (Sternberg, Kaufman & Grigorenko, 2008).

"**Questioning Assumptions**" is another element that enhances a creative thinking style. Assumptions are widely shared values. However, they might not necessarily be correct or free of limitations. Creative people question these assumptions and open up new possibilities that might finally lead to a breakthrough (Sternberg & Williams, 1996). As claimed by Sternberg, Kaufman and Grigorenko, "Society tends to make a mistake by emphasizing the answering and not the asking of questions" (2008). Students who can recite information and provide a quick answer are considered as good students. However, John Dewey suggested that "how we think is often more important than what we think" (Sternberg & Williams, 1996:13). So challenging assumptions and asking provoking questions are important elements for enhancing students' creativity and students should be allowed and encourage to do so (NACCCE, 1999).

3.4.3 Independent Personality

Much research has shown that certain personal attitudes would have a positive effect on creativity (Sternberg, 2006). They include the willingness to "**Take Sensible Risks**", the willingness to "**Tolerate Ambiguity**", the willingness to "**Take Self-responsibility**", and the presence of "**Strong Self-efficacy**".

History tells us that lots of great discoveries or theories were rejected by people in the beginning. The people who figured out these ideas had to face many challenges and take tremendous amounts of risk to persuade others that their ideas were valuable. If they are not willing to take these sensible risks, they might not have a chance of success. In the creative process as well, creative people always encounter a lot of obstacles. They need to deal with a continuous stream of emerging difficulties. Moreover, creative ideas demand time to nurture, and in this particular period, creative people have to face a period of ambiguity when they do not know what to pursue. If they could not tolerate the state of ambiguity in this period and make a rushed choice instead, then the best creative idea might not have adequate time to develop and they would lose a chance of success. Promoting the freedom to innovate and taking sensible risks are also recommended in the NACCCE report (1999).

As Sternberg and Williams claim: "Creative people take sensible risks and produce ideas that others ultimately admire and respect as trendsetting" (1996:25). In the current education system, students are not encouraged to take sensible risks. This is owing to the fact that failure or undesired grades in the school might mean an inferior standard (Sternberg & Kaufman, 2010). Moreover, most current education emphasizes knowledge absorbing, and the assessment criteria might overemphasize the memorization of facts. Students are not interested in taking sensible risks. In order to enhance students' creativity, teachers have to encourage and even reward

students in for "**Taking Sensible Risks**".

Creative activity involves both a generative mode of thought and an evaluative mode of thought. The former always includes imaginative activity that involves novelty generation while the latter involves critical activity that makes value judgements. Creative activity consists of critical evaluation on what works or not by shifting in the focus of attention and modes of thought (NACCCE, 1999). This type of shifting in the modes of thought and focus of attention creates a certain ambiguity in most creative work.

Like artists and writers, when they start to work on a creative project, they have to go through a period of ambiguity to let their creative ideas grow. Normally they will generate a lot of ideas and try out a lot of ways to make their project works before they finalize their approaches or ideas. The period can be explained by Sternberg: "Part of the reason everyone needs time to be creative is that a creative idea tends to come in bits and pieces and develops over time. But the period in which the idea is developing tends to be uncomfortable. Without time or the ability to tolerate ambiguity, you may jump to a less than optimal solution" (2006:28). "**Tolerating Ambiguity**" is also important to students' works. Sometimes, teachers notice that students are not progressing well in their work, and they might urge the students to make a quick decision. This move might interrupt the creative process of the students and prevent the students from learning to deal with a state of ambiguity. As suggested by Sternberg, Kaufman and Grigorenko: "To help students become creative, teachers need to encourage them to accept and extend the period in which their ideas do not quite come together. Students need to be taught that uncertainty and discomfort are a part of living a creative life" (2008:300).

"**Taking Self-responsibility**" does not seem to have a direct relation with creativity

development; however it plays an important role in letting creative people have a better understanding of their creative process, allowing them to criticize themselves and enjoy their creative results. Many studies found that self-responsible people tend to have better intellectual success (Sternberg & Williams, 1996). This is owed to the fact that self-responsible people engage in a more serious and detailed consideration of the situation when they decide to challenge the assumptions or take sensible risks to pursue creative ideas.

Self-efficacy is a concept of psychology. It is the strength of confidence with which a person believes in his ability to complete a task or reach a goal. The theory of self-efficacy does not concern the actual ability of a person but focuses on the confidence of the person in his ability. It can be viewed as the persistence of a person in completing a work. It also affects the decision making processes of a person in facing up to challenges. As mentioned by Sternberg: "The main limitation on what students can do is what they think they can do … Sometimes teachers and parents unintentionally limit what students can do by sending messages that express or imply limits on students' potential accomplishments" (2010). Sternberg and Williams also argue that people always limit themselves in accomplishing goals because they believe that they cannot work them out or they believe other people who tell them that they are incompetent to work them out (Sternberg and Williams, 1996). Building a "**Strong Self-efficacy**" for students can make them strong in their willingness to take risks, surmount obstacles and develop creativity.

3.4.4 Motivation

Effective leadership and motivation are conditions that foster creativity (Joubert, 2001). Motivation is widely used in management practice (Ma, 2011). In some selling

activities, the commission received by the sales person is proportional to the quantity of product sold. The more the quantity of the product he sells, the more commission he earns. In order to earn more, the sales person has to work harder in his selling. The commission is a kind of extrinsic motivation to the sales person. However, some scholars consider extrinsic motivation has a negative effect on creativity, and only intrinsic motivation can help to promote creativity (Amabile, 1996). Intrinsic motivation is defined by Hennessey and Amabile as "the drive to do something for the sheer enjoyment, interest, and personal challenge of the task itself (rather than for some external goal), is conducive to creativity" (2010:581). Creative people always have strong incentive behind their willpower, and they keep challenging themselves and refining their ideas or works. Actually what makes them work in such a way is their intrinsic motivation. The ultimate returns are their satisfaction and self-actualization. However, Sternberg mentioned that this motivation is not inherent in a person, but is a kind of decision that is made; they choose to be motivated by their work (2006). Sternberg suggested several ways to develop students' intrinsic motivation in creativity.

"**Finding Excitement**" helps students find what excites them to develop their intrinsic motivation. As Amabile (1983) suggests, people can do truly creative work if they really love what they are doing. So encouraging students to work on something they are interested in will increase their intrinsic motivation and creativity.

As Sternberg indicates, sometimes teachers limit our students' creativity by asking the wrong questions. For example, by using multiple-choice tests, we can only test the students' understanding of the information given. By asking students to go beyond the information given, it opens up an opportunity to be creative (1996). So, teachers can encourage students' to develop their creativity by "**Instructing and**

Assessing Creativity" through providing assignments that demand factual recall, analytic thinking, and creative thinking. As claimed by Sternberg and Williams, "the only limitations in the assignment are those set by the imagination of the teachers and students" (1996:22).

If we want to nurture students' creativity, we should not just talk about it but we also have to reward students for their creative efforts, since students will sooner or later recognize the teachers' actual thinking if they just talk without acting accordingly. In "**Rewarding Creative Efforts**", it does not really matter if the ideas or products the students come up with are good or bad: the main point is that they generate ideas that are a synthesis between their own thoughts and existing ideas (Sternberg and Williams, 1996).

3.4.5 Supporting Environment

As suggested by the NACCCE: "The roles of teachers are to recognize young people's creative capacities; and to provide the particular conditions in which they can be realized" (1999:11). In order to nurture students' creativity, we should provide a supporting environment for them to grow (Sternberg, 2003). This environment should encourage and appreciate new idea generation, encourage cross fertilization and creative collaboration and allow making mistakes.

Sometimes the learning environment is not fully supportive to creative expression. Normally there is negative feedback on creative thinking because creative ideas do not follow conventions. In order to "**Encourage Idea Generation**" from students, they should be allowed to express their ideas no matter whether they are valuable or not, and they should also be free of criticism. The purpose for encouraging idea generation is not to ask for good ideas, but to encourage students to develop a habit

for new ideas.

Traditional curriculum design always separates disciplines into subjects. This might create an impression to students that learning occurs in discrete boxes. However, creative ideas do not come from memorizing and reciting materials, but from integrating and synthesizing materials across subject areas. So we "**Encourage Cross-fertilizing Ideas**" to stimulate students' creativity by helping them to think across subjects and disciplines (Sternberg & Williams, 1996). Creative collaboration can also help to improve students' creativity. It allows our students to "imagine things from other viewpoints" (Sternberg, Kaufman, and Grigorenko, 2008).

New ideas might not always work, but they allow us to learn from our mistakes and build a basis for other successful ideas. However, "schools are often unforgiving of mistakes. Errors in schoolwork are often marked with a large and pronounced X" (Sternberg & Williams, 1996:29). In order to encourage students to generate ideas, we should help them to build their confidence. "**Allowing Mistakes**" is to let students know that everyone makes mistakes and the only failure is if they cannot benefit from their mistakes.

Based on the conceptual framework identified in the above, a theoretical framework of teaching for creativity is constructed as below:

Table 2. 1 Theoretical Framework of Teaching for Creativity

Ways to Develop Students' Creativity	Opportunity	Encourage-ment	Reward
Creative Thinking Style			
Redefining problems (allow students to make their own decision)	○		
Questioning assumptions (how students think and how they ask)	○		
Allowing time for creative thinking	○		
Independent Personality			
Taking sensible risks (take intellectual risks)	○	○	
Tolerating ambiguity (creative ideas come up in bits and pieces)	○		
Taking self-responsibility		○	
Strong self-efficacy (ensure students' ability)	○	○	
Intrinsic Motivation			
Instructing and assessing creativity (ask stimulating questions)	○		○
Rewarding creative ideas and products			○
Supporting Environment			
Encouraging idea generation (free of criticism)	○		
Encouraging cross-fertilizing ideas	○		
Allowing mistakes	○		

The matrix shows the various elements that contributed to the teaching for creativity

3.5 Chapter Summary

Research on creativity has only a short history and there is no commonly agreed approach on how to deal with this topic. Moreover, creativity is a complex concept and difficult to define. Most of the scholars agreed that creativity involves thinking that is aimed at producing ideas or products that are relatively novel and compelling. Stain's (1985) definition of creativity suggests novelty and appropriateness are two important elements for creativity. There are different approaches and focuses on study creativity. The 6Ps model focuses on "Person", "Product", "Process", "Press", "Persuasion" and "Potential". Categorizing creative magnitude into Big-C, Pro-c, Small-c and Mini-c also helps to understand the various approaches of creativity research. Fostering creativity in education is an important topic in the recent education reform. The fast developing economy and society induces lots of changes. Nurturing students' creative ability and attitude can help them meet the future challenges in economic, technological, social and personal areas. However, many people claim that education inhibits creativity. Many scholars suggested various ways to promote creativity education. Sternberg's Investment Theory of Creativity is an amalgamation of different theories. However, the theory emphasizes that creativity is not only some kind of ability, but also a "decision" that supports the practice of creativity. The theory is divided into four main components, namely creative thinking style, independent personality, motivation and supporting environment, and formulates the foundation of the conceptual framework for this research.

Chapter 4 Research Methodology

4.1 Introduction and Overview

This chapter describes the course and logic of the research process. It provides explanation on how each component of the research methodology was developed and presented. It also shows how these interconnected components contribute to the overall methodological integrity of the study. The research methodology chapter includes discussions among the following areas: (a) overview of the rationale for research approach, (b) overview of the information needed to answer each research questions, (c) description of the research sample, (d) methods of data collections, and (e) analysis and synthesis of data. The chapter concludes with a chapter summary.

4.2 Rationale for the Research Approach

The rapid development of cultural and creative industries in China induces a growth in intellectual property development. Some OEM companies are gradually turning themselves into ODM and OBM operations. The Chinese animation industry also benefits from government policy support and is starting to develop and produce its

own original production. The change of the production direction creates a great demand for creative workers, and naturally educational institutes shall become the obvious sources for these creative talents.

In the last decade, the number of undergraduate programs in the animation discipline in China has grown dramatically, with substantial support from the government. In 2000, there was only one higher education institute providing undergraduate degrees in animation. In 2006, there were 447 universities offering 1,230 programs in animation related disciplines (Xiao, 2011). The growth is quite promising in terms of numbers, but the quality of the programs has been questioned by many scholars. China has been famous for its “copycat culture”, raising the question of to what extent could these animation education institutes could nurture creative talents to meet the demand of the creative industries?

In order to answer the above question, the research addressed the following research questions:

(1) How do animation teachers and students perceive the objective of animation education?

(2) How do animation teachers and students perceive the meaning of creativity in animation education?

(3) What particular curricula do animation teachers and students perceive to have been implemented in animation programs to nurture students’ creativity?

(4) What methodologies do animation teachers and students perceive that have been used by animation educators in nurturing students’ creativity?

4.2.1 Approaches of the Research

Quantitative research is focused on testing of hypotheses to establish facts and to designate and distinguish relationships between variables. The proposed research topic is still underdeveloped and quantitative research methods are not well suited to answer the above questions. Purely quantitative methods were unlikely to elicit the rich data necessary to address the proposed research purposes. The fundamental assumption and key features that need to address in this research could be well fitted with the qualitative stance, these features include:

- Developing contextual understanding
- Facilitating interactivity between researcher and participants
- Adopting an interpretive stance
- Maintaining design flexibility

Qualitative research is essentially constructivist. Qualitative methodology implies an emphasis on discovery and description, and the objectives are generally focused on extracting and interpreting the meaning of experience (Bogdan & Biklen, 1998; Merriam, 1998). The intent of qualitative research is to examine a social situation or interaction by allowing the researcher to enter the world of others and attempt to achieve a holistic rather than a reductionist understanding (Maxwell, 2005; Merriam & Associates, 2002). A qualitative research approach can also promote a deep understanding of a social setting or activity in the perspective of the research participants. The study will use a qualitative research approach to collect, analyze and interpret data.

4.2.2 Multiple Cases Study Methodology

Within the framework of a qualitative approach, the study was most suited for a case study design. As a form of research methodology, case study is an approach to qualitative research. It provides an intensive description and analysis of a phenomenon, social unit or system bounded by time or place (Lichtman, 2006; Merriam & Associates, 2002). As Merriam (1998) indicates, qualitative case study is an ideal design for understanding and interpreting educational phenomena. A case study design is employed to gain an in-depth understanding of the situation and meaning for those involved. "*The interest of a case study design is in process rather than outcomes, in context rather than a specific variable, in discovery rather than confirmation*" (Merriam, 1998:19).

The study used a qualitative research approach to collect, analyze and interpret data because "*good description is fundamental to the research enterprise and it has added immeasurably to our knowledge of the shape and nature of our society*" (De Vaus, 2001:1). The aim of the study is to explore and identify how the current animation education is nurturing creativity in China. To achieve this, the study attempted to discover how creativity was interpreted and nurtured in the animation programs, and presented descriptive research findings which would enable the bridging of the knowledge gap in this particular area. This research to some extent also formulated a generic model that will help teachers to improve their teaching and learning approach in nurturing creativity in disciplines related to content design.

4.3 Information Needed to Answer the Research Questions

As from the previous literature review, it is apparent that after China's "reform and opening-up", structural changes have been made in cultural development. China started to address the cultural industry as a subject for national policy-making in 1998.

With the impact of Creative Industries development in the UK and other countries, China adopted the term Cultural and Creative Industry in a national strategy to initiate a structural refinement of the industrial sectors. The animation industry in China has long served as major OEM, or Original Equipment Manufacturer, to foreign investors starting to develop into ODM and OBM (Original Design Manufacturer and Original Brand Manufacturer) that led to a rapid demand for creative talent from higher education institutes in China. Animation training in China has a long tradition in nurturing skillful artists and workers for the OEM market. As the strategic development of the Cultural and Creative Industries in China progressed, the animation industry and animation education received substantial support from the government. Many schools and animation programs emerged. Many scholarly articles indicated that the rapid increase in animation programs created a number of problems. However, nurturing creativity as a core concern for animation education in the context of creative industries has not been addressed adequately. This creates a knowledge gap in our understanding of animation education in China.

Animation education has developed rapidly in China over the last ten years. In 2000, there were only two higher education institutes providing animation education programs. By 2010, there were more than 1,000 higher education institutes providing about 2,000 animation programs in China. The rapid expansion of animation education was due to the intensive support of the development of cultural and creative industries by the government. The animation industry, as one of the key cultural and creative industries, benefited from such a move.

The tremendous support and investment in animation education resulted in a rapid growth in the number of animation education programs and in the size of the student intake. These increases could have been taken as a success story, but they also

created lots of problems in the animation education system (Li, 2010; Sun, 2006; Sun, 2005). In 2013, an “animation education” keyword search in the China Journal Full-text Database returned over 400 articles, and half of which discussed development issues of animation education. Most of them claimed that animation education could not meet the demands of the animation industry, and there was a serious shortage of qualified animation teachers (Sun, 2005). A large number of articles also touched on words like “creativity” and “innovation’, but no article actually studied the topic of nurturing creativity in animation education in China.

If creativity is considered as a major component in the cultural and creative industries, and animation industry is one of the key sectors in the industries, creativity nurturing should play an essential role in animation education. However, in the vast number of published articles in animation education, we seldom see research topics addressing this issue. This evidence concluded a knowledge gap in the creativity nurturing in animation education.

To answer the research questions proposed previously requires collecting three types of data namely demographic data, contextual data and perceptual data.

Demographic data refers to participant profile information that describes who are the participants in the study, which can be used in the analysis process to compare and identify different demographic groups. For example, we could compare different groups of participants with different years of teaching experience in the study and find out whether there is any difference in the teaching methodologies in nurturing students’ creativity. By comparing and contrasting with various demographic groups, we can identify any correlation between the demographic information to the subjects of the study.

Contextual data refers to the context within which the participants work or study. This information includes details like the education institutions that the teachers are serving and the programs that the students are studying. The contextual information might also give us insights on the study. For example, some education institutes that have a larger number of qualified animation faculty might have less supervision workload. Owing to a lower workload, the teachers could spend more time with the students. Instead of giving straight answers to the students' questions, they can propose some more questions to the students and let them explore some more alternatives and eventually find the answers by themselves.

Perceptual data refers to participants' perception to the particular subject of the inquiry. The perceptual information should help to answer the following research questions:

4.3.1 Information Needed to Answer Research Question 1

Research Question 1: How do animation teachers and students perceive the objective of animation education?

The program objectives govern the structure and the learning outcomes of the program. By understanding the program objectives, we shall know what kind of graduate is expected and what particular quality of the graduates should be possessed.

The program document can serve as an evidence of the expectations of the program in a literal sense, but this research is more concerned with the interpretation of the objectives of the teachers and students on the programs. Because the literal meaning of the program objectives is still subject to interpretation with contextual information, it is more relevant to our study by knowing how the teachers and students interpret the program objective. In qualitative research, one is more interested in the interpretation of the phenomenon instead of the phenomenon itself alone.

On the other hand, if we want to ensure the success of converting animation industries from OEM to ODM and OBM, then we have to ensure a continuous expansion of creative labor supply from the universities. Knowing the objectives of the current animation education shall give us a better understanding of how to improve the current situation to meet the future needs.

OEM productions have dominated the animation industry in China for a long time. Many OEM productions continue to be made in China, and these companies demand a large number of skillful workers. Although the newly developed programs are mainly targeted at the future development of the animation industry, education institutions might fall into difficulties in balancing their training programes, with providing immediate job opportunities to meet the current demand or cater for the future demand for creative workers. This research aims to find out what the current situation is.

Teachers are the front line people who really carry out the nurturing process, but we don’t know how they interpret the objective of animation education. The objective of the animation program will only be valid if the objectives of the program can be

well received by the teachers. So knowing how the teachers and students interpret the program is much more important than the actual program learning objective.

Knowing students' interpretation is important owing to the fact that ordinary students focus on studying what they believe the program taught. Their interpretation governs the overall program outcomes. They can behave creatively or not, depending on how they pursue their education. So students' understanding of the program objective also serves a purpose to reveal any communication breakdown between teaching and learning.

4.3.2 Information Needed to Answer Research Question 2

Research Question 2: How do animation teachers and students perceive the meaning of creativity in animation education?

In this particular question, I have to capture the different ways teachers and students understand creativity, such as how they define it. Since we do not have a unified definition or understanding of the conception of creativity, an understanding of how teachers and students perceive the meaning of creativity shall help in fostering creativity in teaching and learning.

As was indicated in the research "动画专业学生需要的能力得分排序" (Ranking of the ability required for the animation major students) in the China Animation Yearbook 2010, "creative thinking" was ranked at the top of the list and the average score was 11.73, which was far higher than the next item on the list "professional

animation knowledge" with the score 9.96 (Li, 2010). As it was not discussed thoroughly in the report, I would like to have a better understanding on the implications of the previous findings from this study.

The question also serves to identify the reasons why teachers see creativity as important to the students and in what way students benefit from the teaching of creativity. The answer to this question also helps to verify whether the teachers perceive that the animation industry is a sector of the cultural and creative industries, and that creativity is one of the criteria for success in this industry.

The students' answers in this particular section not only help to triangulate the teachers' answers, but also give a better understanding of how students interpret the term creativity and whether teachers can effectively disseminate their understanding of creativity to the students.

4.3.3 Information Needed to Answer Research Question 3

Research Question 3: What particular curricula do animation teachers and students perceive to have been implemented in animation programs to nurture students' creativity?

By knowing this information, we shall have a better understanding of the current status of how students' creativity is nurtured in the animation education institutes.

This information can also show what the teachers' and students' perception of creativity is and how they feel about these types of activities.

In this particular question, I want to know how teachers and students perceive creativity, especially whether it can be taught or not. Some historical theories consider creativity as innate and it cannot be taught through education systems. Some of the recent theories consider creativity as a kind of ability that can be trained with appropriate methods, while other theories consider creativity is more than ability, but also a kind of behavior that can be nurtured through a proper education approach.

This question should also review how the teachers and students think creativity can be taught as a single subject or embedded in the curriculum. Some scholars see creativity can best be nurtured through subjects like art while some others see creativity should be nurtured through proper teaching methodologies in daily class.

4.3.4 Information Needed to Answer Research Question 4

Research Question 4: What methodologies do animation teachers and students perceive to have been used by the animation educators in nurturing students' creativity?

If the faculty members confirm that creativity is important and they also nurture students' creativity in the programs, then it is important to know what kind of methods they are using in nurturing students' creativity.

Merely collecting data to review the methods used in different programs might not give a good insight in the current operation of animation education programs in nurturing students' creativity. The data collected will be a pool of discrete methods that the faculty members think are valuable to the students in enhancing their creativity. However, without some kind of framework, it is difficult to compare and contrast the research findings, or perform an analysis of the result based on the statistical relationship.

Various ways of enhancing creativity in education have been discussed in the previous literature review chapter. Prof. Sternberg's investment theory of creativity is a comprehensive model with empirical evidences support. Based on the confluence approach of the investment theory of creativity, a conceptual framework was developed.

By adopting the conceptual framework from Prof. Sternberg's investment model, I can check to see if educators are working in a way that matches the criteria as specified in the conceptual framework. The research does not try to infer a success or failure in the current animation education in nurturing students' creativity; it tries to explore a deeper understanding in the related topic and identify whether they are working in the way as the conceptual framework suggested, or they have some other methods to nurture students' creativity in their programs.

The findings from this question can help to formulate a conceptual model that can help the policy makers in formulating supporting measures to enhance creativity

development, on the other hand the conceptual model can help faculty in developing appropriate teaching approaches and methodologies to foster students' creativity in teaching and learning.

4.4 Research Sample

In a qualitative research approach, the selection of participants in a study is based on purposive sampling (Merriam, 1998). Unlike the random sampling techniques that are based on statistical probability theory, purposive sampling aims at identifying and selecting "information-rich cases" for study (Bloomberg and Volpe, 2008).

Owing to the limited resources, the research focused on the animation education in a single province – Beijing. Selecting Beijing as the research location owing to:

- Beijing is the capital of China that reflects the importance of political and economic policies.
- Beijing is the first city to adopt a cultural and creative industries policy
- Beijing has the most significant history in animation education development in China
- Most of the well-established animation schools are located in Beijing
- The animation schools in Beijing accept students from all provinces of China
- Graduates of the animation schools in Beijing are employed all over China

The sampling selection process started with identifying a full list of higher education institutes in Beijing. A comprehensive list of education institutes was collected to formulate an excel table. The excel table was prepared including details of:

1. Name of the university
2. Category – college education, vocational training etc.
3. Program level – bachelor degree, master degree

4. Affiliation – Ministry of Education (教育部), Beijing Municipal Commission of Education (北京市教育委员会), Ministry of Industry and Information Technology (工业和信息化部), etc.
5. Types – technical (工科), medical (医药), agricultural (农业), education (师范), Art(艺术) etc.
6. Programs - animation
7. Faculty – animation related faculty or departments
8. Major – animation, visual effects, game
9. Program title –

There were 98 higher education institutes in Beijing province at the time of the sample selection period (2011) (Appendix 3). After deleting all those education institutes that did not provide animation education or animation education related programs, then 36 education institutes remained in the list (Appendix 4). Since the study was focused on creativity nurturing, all those institutes providing vocational training were excluded. After a review of the relevancy of the programs and the program direction of these education institutes, 10 institutes providing bachelors degrees or above were included as the research sample (Appendix 5).

The 10 institutes included in the study are as follows:

- Beihang University
- Beijing Film Academy
- Beijing Institute of Fashion and Technology
- Beijing Institutes of Graphic Communication
- Beijing Technology and Business University
- Beijing University of Technology
- Central Academy of Fine Arts

- Communication University of China
- Renmin University of China
- Tsinghua University

Following are the brief details of the selected education institutes. This information shall contribute to the contextual understanding in the later analysis.

4.4.1 Beihang University

Beihang University (formerly Beijing Institute of Aeronautics) was founded on October 25, 1952 out of the merger of the aeronautical departments of Tsinghua University, Beiyang University, Amoy (Xiamen) University, Sichuan University, Yunnan University, Northwest Institute of Technology, College of Engineering, North China University, and Southwest Aeronautical Institute. Beihang University is New China's first Aeronautics and Astronautics institution of higher education, and now it is affiliated to the Ministry of Industry and Information.

The School of New Media Art and Design was established in 2006. It consists of a visual communication department, a digital animation art department, a painting department and some other research centers. The School provides basic training in illustration, color theory, basic photography, art history, design history, graphic design and basic animation theory. Discipline major is started in the year 3 study with one choice from visual communication, digital animation art or painting. The School provides graduates with extensive understanding in network communication environment and prepares them with wide knowledge and adaptability in their future career. They can participate in jobs in film and

television animation, graphic design, illustration and network based digital publishing.

4.4.2 Beijing Film Academy School of Animation

The Animation School of Beijing Film Academy was set up in 2000. Its primary goal is to educate animation directors and high-level talent for animation production. The school used to be an animation major under the department of Fine Arts of Beijing Film Academy, which was established in 1952. During the past 50 years, the school has made a great contribution to the development of the Chinese animation industry. Many famous animators, outstanding animation directors and production talents of different generations graduated from this school. The school offers 4 Master of Fine Art programs, including Animation Production Theory, Animation Production and Multi-media Application, History of Animation and Screenplay Writing for Animation; 4 Bachelor of Art programs, including Artistic Animation, Computer Animation, Cartoon and Comic, and Game Design; 4 junior college education programs, including Cartoon and Comic, Computer Animation, Character Animation Design, and Game Design. The school also provides programs of occupational certificate training and continuing education.

4.4.3 Beijing Institute of Fashion and Technology

Beijing Institute of Fashion Technology (BIFT), founded in 1959, is China's premiere educational facility associated with fashion, mainly specializing in art and technology. BIFT combines art education and engineering education with sound business administration, integrates ethnic fashion culture with

contemporary design philosophy, and realizes theory in practice. The institute consists of five schools, two departments and some other teaching divisions.

The School of Art and Design was founded in 1988. The School admits undergraduate and postgraduate students from all around the country. It offers five majors in Art and Design (Art Design, Industrial Design, Animation, Digital Media Art and Photography) and two minor disciplines (Design Art and Art Studies). Animation is a new specialty for the School. The core curriculum includes subjects in creation basics, animation technology, creative thinking, animation principles, concept design, script and story board, computer operation, information design, comprehensive media design, animation promtion, etc.

4.4.4 Beijing Institutes of Graphic Communication

Beijing Institute of Graphic Communication (BIGC) started from the Department of Printing in Culture Institute affiliated to the Ministry of Culture in 1958 and laid the foundation of China's higher education in printing. In 1961, the Culture Institute was discuntinued and its Department of Printing was merged into Central Academy of Art and Design. The Department of Printing shouldered the burden of printing talents development and cultural inheritance of Chinese civilization and continued to grow up.

The Bachelor of Arts in Animation trains high-level application-oriented professionals who develop comprehensive qualities in animation for modern film and television and related cultural and media industries. Its unique characteristics are the integration of art with science and technology and the emphasis on traditional and modern integration in animation. The program

develops students morally, intellectually, physically, and aesthetically, focusing on who have a strong creative capacity and an artistic innovative spirit in animation creation so that they can engage in editing and creation, teaching, research, and related work for film and television and related media industries. The core courses include sketching, colorization, introduction to animation, video and audio language, modeling, script writing, motion design and software skills.

4.4.5 Beijing Technology and Business University

Beijing Technology and Business University (BTBU) is a key state-run university with comprehensive disciplines covering Arts, Sciences, Engineering, Law, Economics, History, Philosophy and Management.

The University consists of nine schools, one department (Research Institute) and one education center, within which 43 undergraduate majors, 35 postgraduate majors, 2 master degree programs and some joint doctoral programs are offered. The School of Art and Communication provides undergraduate training in Art Design, Digital Media Art, Industrial Design, Advertising, Journalism and Broadcasting Journalism. The Digital Media Art program nurtures students in integrated studies of computer science, animation, digital design and related fields.

4.4.6 Beijing University of Technology

Beijing University of Technology (formerly known as Beijing Polytechnic University) was founded in 1960. It is a key university under the administration of the Beijing municipal government, which has established a multi-disciplinary academic structure. The structure offers various programs and also involves in

diversified academic research in the fields of science, engineering, economics, management, liberal arts and law. It is ranked as one of the 100 key universities for the 21st century. Its mission is to cultivate qualified high-level personnel, for scientific and technological innovation and for research and development.

The Digital Media Arts and Design Department was founded under the College of Art and Design in 2000. The Department is the youngest department of the University and aims to nurture students for the newly developed information age. The Department provides a bachelor's degree major in Animation and a bachelor's degree major in Digital Media Art and Design.

4.4.7 Central Academy of Fine Arts

The Central Academy of Fine Arts (CAFA) was founded in April 1950, as a result of merger between the National Art School in Beiping and the department of fine arts at third campus of North China University. The history of "National Art School in Beiping" might date back to the founding of "National School of Fine Arts in Beijing" in 1918, advocated by the notable educator, Cai Yuanpei. It was the first national school of fine arts in Chinese history, and also the beginning of Chinese modern education in fine art.

The Academy comprises six specialty schools: School of Fine Art, School of Chinese Painting, School of Design, School of Architecture, School of Humanities, and School of Urban Design. The School of Design bears the goal of preparing and training the students as future professionals in design with creative thinking and practical capabilities. The School offers undergraduate, graduate and Ph.D. degrees in programs ranging from visual communication design, product design, fashion design, photography, digital media to design theory and history.

4.4.8 Communication University of China

The Communication University of China (CUC) is one of China's key universities directly under the guidance of the State Ministry of Education. The predecessor of the school was a training center for technicians of the Central Broadcasting Bureau that was founded in 1954. In April of 1959, the school was upgraded to the Beijing Broadcasting Institute approved by the State Council. In August of 2004, the BBI was renamed Communication University of China. The CUC focuses on nurturing individual features yet encouraging wide connections with other courses. As a result, an inter-relating and inter-influencing discipline system is formed which covers journalism and communication, radio, film & television arts, information science and technology, literature, engineering, management, law, economics and science.

The School of Animation and Digital Arts consists of Animation Department, Digital Art Department, Game Designing Department and Art Foundation Department. The School also includes the Asian Animation Research Center, Digital Art and Technology Research and Development Center and several other research institutions etc. The School nurtures inter-disciplinary animation talent with the combination of art and technology and it is one of the key bases for animation education and research in China.

4.4.9 Renmin University of China

The history of Renmin University of China can be traced back to Shanbei Public School, which was founded in 1937. Later it developed and was renamed as

North China United University, and then North China University. The present Renmin University of China was established in 1950.

School of Arts (SA) was founded in 1999 and provides a comprehensive education in music performance, design and fine art. All the departments of SA offer a solid but flexible curriculum, integrating aesthetic theory and practice while teaching an understanding of arts and design. The arts curricula encompass courses open to non-art majors. The School includes three departments: Department of Painting, Department of Art and Design, and Department of Music. Teaching in the Art School is implemented through a studio system. The animation program is affiliated with the Animation Studio in the Department of Arts and Design.

4.4.10 Tsinghua University Academy of Arts and Design

The predecessor of the Academy of Arts & Design, Tsinghua University, is the Central Academy of Arts & Design. With the approval of the State Council, the Central Academy of Arts & Design (CAAD) was established in 1956 to meet the country's demand for art design professionals. In November 1999 as China began restructuring its institutions of higher learning, CAAD merged with Tsinghua University and changed its name to the Academy of Arts & Design, Tsinghua University, opening up a new chapter where it is to develop the art design discipline in a comprehensive university.

The Department of Information Art and Design was reorganized on the basis of offering an Information Design major in the Department of Industrial Design, and an Animation Design major in the Department of Visual Communication Design. The Department aims to cultivate students' capabilities in integrating information technology and art, designing and planning based on client

experience, and exploring new solutions combining information industry and social demands. The Department has three majors for undergraduates, including Information Design, Animation Design and Digital Entertainment Design, and four research fields for postgraduate students including New Media Art and the above mentioned three. “Information Design” is a new area of art design in information age. “Animation Design” and “Digital Entertainment Design” are both representatives of culture industry. “New Media Art” is a new form of art integrating art with information technology.

The requirement to complete a capstone project normally appears during the final year of study for students in animation study programs. It makes students apply the knowledge and skills learned from the program to create a self-initiated project guided by supervisors. Students have to demonstrate that they can integrate their knowledge, abilities and creativity in a final product that is aligned with the program learning outcomes (Lo et al, 2010). Since the capstone project incorporates most of the learning outcomes of animation study programs and also allows students to exercise their creativity fully, the study focuses on both teaching staff and students being involved in capstone projects.

The study included interviews of two capstone projects teaching staff from each institution and four students supervised by these staff. Separate semi-structured interview questionnaires were used for teaching staff and students. The interview questions were largely divided into three parts that deal with questions on (1) program outcomes; (2) curriculum design; and (3) teaching methodologies. A conceptual model modified from Sternberg’s theory of creativity (1996, 2010) was

used to construct the teaching methodologies session. By interviewing teaching staff and students, the findings could be effectively triangulated.

Owing to the unavailability of some faculty in two institutes during the interview period, a total of 18 faculty from the 10 educational institutes were interviewed in the summer of 2011. 30 students who were under supervision by one of the 18 interviewed faculty were interviewed in the same period (Appendix 5).

After the first batch of interviews of the 48 participants, a comprehensive analysis process was carried out. The analysis indicated that the first batch of interviews received substantial data on answering the first three research questions, however the data collected for the fourth question concerning the teaching methodologies was not sufficient to infer significant findings. A second batch of interviews was carried out in 2012 summer and another 44 recently graduated students from these institutes were interviewed. The participants were introduced by the faculty members who participated in the first batch of interviews.

4.5 Data Collection Methods

Although the data collection process seems to be relatively straightforward, it certainly involves some contingent issues when a large number of interview participants are scattered in different education institutes. The best possible measure to deal with the contingency is sufficient preparation for the data collection process. This can largely help in the smoothness of the interview process and to ensure the integrity and validity of the data collected.

After verifying what information is needed, through a substantial literature review, I then move on to develop the data collection procedures.

4.5.1 Developing Questionnaire

Since it has already been decided to use qualitative approach to bridge the knowledge gap in the animation education in nurturing students' creativity in China, a series of questions has to be asked by way of semi-structured interviews. The immediate need was to develop a questionnaire for the interview process.

In developing the questionnaire, several criteria had to be observed. The questionnaire needed to include questions that cover the four research questions listed in the previous chapter. However, the questions should also be structured in a way that allow the interviewees to follow the flow of information asked, because addressing the research questions directly without building up substantial contextual information on the background of the related questions might affect the validity of the answer and also make the coming analysis difficult. Moreover, using semi-structured interviews also allowed the interviewer to follow up with some interesting aspects in the interview process.

The questionnaire was divided into three main sections to collect (1) demographic and contextual related data of the participants, (2) program related data of the participants' education institutes, and (3) graduation project subject related data that includes the participants' teaching and learning process in this subject. Separate questionnaires were developed for teachers and students. The questionnaire includes the following questions:

Demographic and contextual related questions for teachers

- What is your name?
- What is your job title in the University?
- How many years have you been working here?
- What subject(s) do you teach?
- How many subject(s) do you teach in this academic year?
- How many weeks will each subject take?
- How many hours will each subject take every week?

Although the study does not compare education institutes in the way they are nurturing students in their education programs, the study tries to understand any correlation between experiences of the teaching staff to the way they nurture students' creativity and also how workload affects the way they nurture students' creativity.

Program related questions for teachers

- How many faculty members are responsible for teaching this program?
- When did this program start? (in the year of -)
- How many students does this program admit each year?
- Does the program admit students all through the country?
- What are the backgrounds of students usually (arts, science or art)?
- Does the program consider admitting some more students?

The above questions serve to identify the contextual information about the education institutes and the corresponding programs.

Questions on the program objectives for teachers

- What are the objectives of this program according to your understanding?
- What are the differences between this program and those offered by other Universities?
- What are the standard of students after graduating (what type of jobs do they work at)?
- How does this program train students with technology and skills?
- How does this program train students with creativity?
- How can this program be improved?

The above questions serve to answer the research question 1 on “how do animation teachers and students perceive the objective of animation education?”

The above questions are used to identify how teachers interpret the objective of the program. I can check whether they include nurturing creativity as one of the objectives. When the teachers talk about the strengths of the program, I can see how they prioritize all those objectives that previously addressed. By asking the competency of students after graduation, it can help to check the consistency of the answers in the previous question on the program objectives.

The questions address the training in program can help to answer the research question 2 on “how animation teachers and students perceive the meaning of creativity in animation education?” and question 3 on “what particular curricula do animation teachers and students perceive have been implemented in animation

programs to nurture students' creativity?" These questions also help to understand how teachers define and interpret the term "creativity".

Capstone project questions for teachers

- How many years have you been teaching the Graduation Project?
- When does the Graduation Project start and end?
- How many credits are there for the Graduation Project (if it is credit-based)?
- How many students enroll in the Graduation Project every year?
- How many students do you supervise for the Graduation Project this year?
- How many hours does the Graduation Project take every week?
- Is the Graduation Project conducted by individual students or teams of students?
- Is it possible for students to seek assistance from outsiders?
- If so, usually what type of outsiders will offer help to students?

The above questions serve to acquire the contextual information about the graduation project. The last three questions are used to answer the research question 4 on "what methodologies do animation teachers and students perceive that have been used by the animation educators in nurturing students' creativity?" on the attribute of "encouraging creative collaboration" (one of the attributes in the conceptual framework).

Questions on teaching methodologies for teachers

- What are the objectives of the Graduation Project according to your understanding?
- What learning outcomes do you expect your students can have (what kind of works)?
- Could you please explain how the Capstone Project is conducted (Process)?
- Any fixed class schedule (Checkpoint)?
- Any fixed teaching syllabus?
- How frequently will students who enrolled in the Graduation Project meet with you?
- How do you guide your students (in terms of the communication mode and the frequency of communication)?
- What will students usually ask during the meeting?
- What have you discussed with students in your last meeting?
- How do students choose their Graduation Project topics?
- What are the difficulties usually faced by students when developing their topic?
- What are the difficulties usually faced by students when working on their Graduation Project?
- What will you do when students are facing difficulties and discussing them with you?
- Please talk about one Graduation Project that you like most (areas that you both like and don't like)

- What characteristics do you think this student has, that have contributed to making this project successful? (attitude/ability)
- How do you mark a Graduation Project? (procedures)
- Do you provide any comment when marking? (how do you handle it if there is a discrepancy in the comments?)
- What are the assessment criteria of the Graduation Project?
- What are the problems you think a student will encounter before completing a successful project?

The above questions are mainly used to answer the research question 4 on "what methodologies do animation teachers and students perceive that have been used by the animation educators in nurturing students' creativity?"

The questions "what will students usually ask during the meeting?" and "what have you discussed with students in your last meeting?" serve to check the particular interests of the teachers in the graduation project (e.g. technical competency or creative problem solving). These two questions with the supplemental question "what will you do when students are facing difficulties and discussing them with you?" help to check the attributes of the conceptual framework in "instructing and assessing creativity" by asking stimulating questions in the discussion with students. Questions on the assessment criteria can help to understand how teachers judge graduation projects. Some other questions like "please talk about one graduation project that you like most" can help to identify the teachers' judging criteria for the graduation project from a different perspective. These questions are used to identify whether creativity is considered as one of the criteria for judging or not. If the teachers claim that creativity is one of the program objectives, then these questions

serve to check the attribute of the conceptual framework in “rewarding creative ideas and products”.

Demographic and contextual related questions for students

- What is your name?
- Which year are you studying in now?
- How many years have you studied here?
- What is the program you are studying now?
- How many students are studying in this program?
- What is your academic background (arts or science)?
- What are the academic backgrounds of other students that you know (arts or science)?
- How many subjects do you need to attend for this academic year?
- How many weeks does each subject take?
- How many hours will each subject take every week?

The above questions serve to collect demographic and contextual information about the students and the programs that they have enrolled in.

Program related questions for students

- Why did you chose this program (what do you think of the program after four years of study)?
- What is this program about?
- What do you think about the objectives of this program?
- What subjects does this program offer?
- Which subject(s) did you like most and why?

- Which subject(s) did you dislike most?
- Which parts in the program do you think are the most important?
- What training for technology and skills is provided by the program?
- What training for creativity is provided by the program?
- How could this program be improved?
- What types of jobs can students take up after graduating from this program?
- What are the special aspects of this program when compared to other programs?

The above questions serve to address the research question 1 on “how do animation teachers and students perceive the objective of animation education?”, question 2 on “how animation teachers and students perceive the importance of creativity in animation education?” and question 3 on “what particular curricula do animation teachers and students perceive that have been implemented in animation programs to nurture students’ creativity?”

Asking what subjects the program offers allows the follow-up question of what subject helps to develop students’ creativity. Questions on how they see the importance of creativity can be asked to further identify the students’ interpretation of the importance of creativity in animation education.

Graduation project related questions for students

- What are the objectives of the Graduation Project according to your understanding?
- What achievements do you think students can have?

- Could you please explain how this subject works?
- Is there any fixed class schedule?
- Is there any fixed teaching syllabus?
- How often will you meet with your supervisor each week?
- How does your supervisor guide you?
- What will you usually discuss when you meet with your supervisor?
- What have you discussed with your supervisor in your last meeting?
- With what will you expect your supervisor to assist you?
- How do you choose the topic of your Graduation Project?
- What are the common problems when you are developing your topic?
- What are the usual difficulties in working on your Graduation Project?
- What will you do when you encounter a problem in your final project?
- Please talk about your project.
- What is the creative aspect of your project?
- What are the characteristics of your project?
- Which part do you like most in your Graduation Project?
- How can a Graduation Project be regarded as successful?
- How are Graduation Projects marked? (procedures)
- What are the assessment criteria of the Graduation Project?
- What difficulties do you think students have to overcome in completing a successful project?
- Do you think you are a creative person?
- What do you think about the term "creativity"?
- Do you think there has been a change of your level of creativity by completing the program?

The above questions serve to answer the research question 2 on “how animation teachers and students perceive the meaning of creativity in animation education?” and 4 on “what methodologies do animation teachers and students perceive that have been used by the animation educators in nurturing students’ creativity?”

Asking students “what is the creativity in your project?” and “which part do you like most in your graduation project?” can help in understanding how students interpret the importance of creativity in their project. “Do you think you are a creative person?” also helps to clarify students’ understanding of the term “creativity” and how they see the importance of creativity training in the animation education.

A series of questions on the graduation project supervision help to motivate students to talk about their feelings on the teaching approaches of the supervisors. Questions like “with what will you expect your supervisors to assist you?” and “what will you do when you encounter a problem in your graduation project?” help in understanding the attributes of the conceptual framework in “defining and redefining problems” and “building self-efficacy” etc.

The following shows the questionnaire for the teachers with indicated relationships with the four research questions on the top of the columns. This questionnaire actually serves as an information chart that indicates what kind of information should be collected. Whenever the participants responded to certain questions and thereby also answer some of the other questions, the interviewer will check the box to remind him that the corresponding questions have already been addressed, to avoid redundancy.

Table 3. 1 Questionnaire for Teachers

Teacher	Questions	Q1	Q2	Q3	Q4
	Demographic and Contextual Details				
	What is your name?				
	What is your job title in the University?				
	How many years have you been working there?				
	What subject(s) do you teach?				
	How many subject(s) do you teach in this academic year?				
	How many weeks will each subject take?				
	How many hours will each subject take every week?				
	Program Related Details				
	How many faculty members are responsible for teaching this program?				
	When did this program start? (in the year of -)				
	How many student does this program admit each year?				
	Does the program admit students all through the country?				
	What are the background of students usually have (arts, science or art)?				
	Does the program consider admitting some more students?				
	Program Objectives Related Details				
	What are the objectives of this program according to your understanding?				
	What are the differences between this program and those offered by other Universities?				
	What are the standard of students after graduated (what type of jobs do they work for)?				
	How does this program train students with technology and skills?				
	How does this program train students with creativity?				
	How can this program be improved?				
	Graduation Project Related Details				
	How many years have you been teaching the Graduation Projects?				
	When is the Graduation Project start and end ?				
	How many credits for the Graduation Project (if it is credit-based)?				
	How many students enrolls in the Graduation Project every year?				
	How many students do you supervise for the Graduation Project this year?				
	How many hours does the Graduation Project take for every week?				
	The Graduation Project is completed by an individual or a team of students?				
	Is it possible for students to seek assistance from outsiders?				
	Usually what type of outsiders will offer help to students?				
	Graduation Project Related Supervision Details				
	What are the objectives of the Graduation Project according to your understanding?				
	What learning outcome do you expect your students can have (what kind of works)?				
	Could you please explain how is the Graduation Project conducted (Process)?				
	Any fixed class schedule (Checkpoint)?				
	Any fixed teaching syllabus?				
	How frequent will students who enrolled in the Graduation Project meet with you?				
	How will you guide your students (in terms of the communication mode and the frequency of communication)?				
	What will students usually ask during the meeting?				
	What have you discussed with students in your last meeting?				
	How students choose their Graduation Project topics?				
	What are the difficulties usually faced by students when developing their topic?				
	What are the difficulties usually faced by students when working on their Graduation Project?				
	What will you do when students are facing difficulties and discussing with you?				
	Please talk about one Graduation Project that you like most. (areas that you both like and don't like)				
	What criteria do you think this student has so that his project can be a successful one? (attitude/ability)				
	How to mark a Graduation Project? (procedures)				
	Any comments provided when marking? (how to handle if there is discrepancy in the comments)				
	What are the assessment criteria of the Graduation Project?				
	What are the problems do you think a student will encounter before completing a successful project?				

Table 3. 2 Questionnaire for Students

Student	Questions	Q1	Q2	Q3	Q4
	Demographic and Contextual Data				
	What is your name?				
	Which year are you studying now?				
	How many years have you studied here?				
	What is the program are you studying now?				
	How many students are studying in this program?				
	What is your academic background (arts/science/art)?				
	What are the academic background of other students that you know (arts/science/art)?				
	How many subjects do you need to attend for this academic year?				
	How many weeks of each subject take?				
	How many hours will each subject take every week?				
	Program Related Details				
	Why you chose this program (how do you think after four years of study)?				
	What is this program about?				
	What do you think about the objectives of this program?				
	What subjects does this program offer?				
	Which subject(s) you like most and why?				
	Which subject(s) you dislike most?				
	Which parts in the program you think is the most important?				
	What are the training for technology and skills provided by the program?				
	What are the training for creativity provided by the program?				
	How can this program be improved?				
	What type of jobs can students take up after graduated?				
	What are the special areas of this program when compared to other programs?				
	Graduation Project Related Details				
	What are the objectives of the Graduation Project according to your understanding?				
	What achievements do you think students can have?				
	Could you please explain how does this subject work?				
	Any fixed class schedule?				
	Any fixed teaching syllabus?				
	How often will you meet with your supervisor every week?				
	How does your supervisor guide you?				
	What will you usually discuss when you meet with your supervisor?				
	What have you discussed with your supervisor in your last meeting?				
	What will you expect your supervisor to assist you?				
	How do you choose the topic of your Graduation Project?				
	What are the common problems when you are developing your topic?				
	What are the usual difficulties in working on your Graduation Project?				
	What will you do when you encounter a problem in your final project?				
	Please talk about your project?				
	What is the creativity in your project?				
	What are the characteristics of your project?				
	Which part do you like most in your Graduation Project?				
	How can a Graduation Project be regarded as a successful one?				
	How to mark a Graduation Project? (procedures)				
	What are the assessment criteria of the Graduation Project?				
	What difficulties do you think students have to overcome in completing a successful project?				
	Do you think you are a creative person?				
	What do you think about the term "creativity"?				
	Do you think there is a change of your level of creativity after completing the program?				

4.5.2 Pilot interview

Separate pilot interviews for one teaching staff and two students were conducted prior to the actual interviews and the questionnaires were improved based on the deficiencies identified during the pilot interviews. The issues identified in the pilot interviews include:

Some original wording seems to ask for the participants' knowledge of facts instead of interpretation, so they said they did not know and stop the possibility for follow-up questions: (this may be because they might not recall full details of something and they are afraid to give wrong answers in such a serious interview process, also they might be afraid to bear any consequences for answering wrong.)

Original:

- What is the objective of the program?

Updated:

- What is the objective of the program according to your understanding?

The questions try to ask for the participants' interpretation instead of fact. So they feel free to answer in their own concern.

Faculty and student participants did not actively participate in giving additional details other than giving short answers to the questions asked. I tried to rework and break down the questions into some more precise questions that can ensure adequate information will be collected. However, it might create a sense that I am asking redundant questions in the questionnaire.

Original:

- Could you please explain how is the graduation project conducted?

Updated (retain the original question with two additional questions):

- Could you please explain how is the graduation project conducted?
- Any fixed class schedule?
- Any fixed teaching syllabus?

Original:

- How to evaluate a graduation project?

Updated (modified the original question with one additional question):

- How to mark a graduation project (procedures)?
- What are the assessment criteria of the graduation project?

Introducing an additional question ensures that fuller details will be received.

(The questionnaire actually works as a checklist, if the participants have already answered some of the questions in his previous answers, then the interviewer will check the box and he will skip the checked question. The interviewer can also change the order of the questions asked according to the follow-up questions during the interview process.)

I have also addressed some terminology issues in the questionnaire. Although both Beijing and Hong Kong students use Chinese in daily communication, some terminology and usages of words are quite different.

The word “創造力” is the proper translation for the word “Creativity”, widely used in academic circles, but it is seldom used by the general public. A more general word “創意”, which literally means “creative idea” in Chinese, has been widely used and

popularly understood by people as equivalent to the word “creativity”. Wide usage illustrates that the use of this word is well received by the general public (Ma, 2014). In our daily use, “創意” this word carries meaning far more than “creative idea”. For example the word “創意產業” (creative industries) not only carries the meaning of novelty of ideas, it also carries the meaning of innovation and capitalizing creative ideas into economic value. So the phrase “創意” (creative idea) in the “創意產業” (creative industries) actually carries the meaning of ‘creativity’. Another example in Chinese “創意人” (creative person) actually carries an understanding that they are excellent in generating creative ideas and also successfully in turning these ideas into products or services that are well appreciated by others. Steve Jobs is always quoted as a typical “創意人” and he was excellent in persuading people of his creative ideas. The Chinese title of the ‘Institute of Creativity’ of the Hong Kong Baptist University is “創意研究院” which uses “創意” instead of “創造力” as the title shows the academic circle also equating the word “創意” with “creativity”. So using a more commonly accepted term “創意” in the questionnaire is judged as being more relevant and appropriate than “創造力”.

In 2013, I conducted a literature search in the China Journal Full-text Database with the keywords “動漫教育” (animation education), which returned 423 articles. Among them, 251 articles studied issues related to the development of animation education in China. I further conducted an analysis on the keywords “创意”, “创新”, “创造力”, “新意”, “原创” in these 251 articles, it came up with the following count:

Table 3. 3 Creativity Keywords Count

Chinese key word	Literal meaning in Chinese	The count of the word
创意	Creative idea	289
创新	Innovation	370
创造力	Creativity	89
新意	New idea	9
原创	Original	256

This result also indicated that “创意” is more popularly used among scholars in the animation education studies. However, I have not confirmed whether these two words “创意” and “创造力” share the same meaning in the Chinese context. In order to avoid error induced from the misuse of words, I have kept a close monitoring of the conversation during the interviews and I noticed that many participants use the word “创意” in a very natural way, but only one participant mentioned the word “创造力” in the discussion.

4.5.3 The interview procedures

An interview protocol is made to govern the proper interview process. The protocol covers research ethics and data privacy issues.

Contact the potential participants and explain to them the objective of the interview and the following details: ● Seek their approval and inform them they can withdraw from the study any time they want

- Inform the participants that data collected will only be used in this particular study and only people involved in this study can review this data
- Inform the participants that the research results will be published as a report and no individual personal details can be identified
- Inform the participant that the research aims to collect data for collective analysis and will not use the data to compare individuals and/or individual education institutes
- Inform the participants that the data collected will be kept safely and names of the participant will not be identified in the interview transcription
- Inform the participants that the collected data will be erased after the completion of the research

Before the start of the interview process:

- Check the digital audio recorder and battery
- Check the questionnaire and fill in the necessary information
- Explain the details of the research and the interview process to the participants

Start of the interview process:

- Address the title of the research in the beginning of the recording
- Address the date and time of the interview at the beginning of the recording
- Address the name of the interviewer at the beginning of the recording

- Address the name of the interviewee at the beginning of the recording
- Address the start time of the interview process at the beginning of the recording

End of the interview process

- At the end of the interview, thanks the interviewee for participating in the research
- Address the end time of the interview at the ending of the recording

After completing the interview, the recordings were transcribed into text, and then the coding process was started. After the first phase of the coding process, I discovered that the data collected in the interviews was sufficient to answer the research questions 1, 2 and 3. However, the data collected from the interviews was not sufficient and significant enough to answer the research question 4. It was very difficult to ensure all participants address all the attributes in the conceptual framework.

The original questionnaire was designed to start with the graduation project tutorial and let the participants talk freely about things that happened, and both teachers and students should comment on the teaching and learning process. The questionnaire purposely did not address the attributes in the conceptual framework directly (e.g. do your teachers help you to build self-efficacy? or do your teachers reward creative ideas and products?), in order to avoid participants from inclining to give positive feedback to their answers and thereby create errors in the study. However, by analyzing the collected data, some participants addressed some of the

attributes in the conceptual framework while the other participants addressed some other attributes. These situations might induce serious errors in the study.

The fact that participants did not address some of the attributes in the conceptual framework might not mean that they did not have significant comments or particular views on those attributes. It only meant that they had not addressed the attributes. It might be because the interviews did not touch upon details of these attributes. Using such set of data to answer the research question 4 might not be valid, so a second batch of interviews was necessary to address the research question 4 again.

4.5.4 The Second Batch of Interviews

The second batch of interviews employed telephone survey and used modified semantic differential approach to see how students interpret the teaching attitudes of their teachers. Students were also encouraged to give reasons for their answers or to give examples to reflect their answers. 44 students were successfully interviewed.

Semantic differential scale is a type of scale to measure the attitude of a person. It is used to describe a set of beliefs that underlie a person's attitude towards an object. An attitude is a mental state involving beliefs, feelings, values and dispositions to act in a certain way. The scale is based on the principles that individuals think dichotomously or in terms of polar opposites such as right to wrong. The scale is constructed as a set of itemized bipolar phrases or adjectives and the respondents are asked to rate their attitudes in that scale. A semantic differential scale was employed in this research because it provides a bipolar scale which is an economical means for attitude measurement.

The second batch of interviews did not include questions that directly addressed the attributes of the conceptual framework, but rather gave examples that related to the corresponding attributes.

The completed second batch questionnaire

Opportunity		
Q1	Have you ever felt that teachers sometimes unintentionally query you in ways that hurt your self-confidence when you are conducting your final year project? (Absolutely no) -2, -1, 0, 1, 2 (Absolutely yes) Please suggest reason(s) or example(s).	Building Efficacy
Q2	Do you feel that your teachers provide you with a high degree of freedom when you are conducting your final year project? (Minimal) -2, -1, 0, 1, 2 (Maximal) Please suggest reason(s) or example(s).	Defining and Redefining Problems (Freedom of Choice)
Q3	Do you feel that your teachers encourage you to spend more time in thinking and idea development during the production of your final year project? (Absolutely discourage) -2, -1, 0, 1, 2 (Absolutely encourage) Please suggest reason(s) or example(s).	Allowing Time for Creative Thinking

Q4	What do you feel about the requirements of your teachers when you encounter confusion in the stage of developing your project idea? (Actively oppose) -2, -1, 0, 1, 2 (Actively confront) Please suggest reason(s) or example(s).	Tolerating Ambiguity
Q5	Will the teachers usually provide comments or bring up questions during tutorials? (Provide comments) -2, -1, 0, 1, 2 (Bring up questions) Please suggest reason(s) or example(s).	Instructing and Assessing Creativity
Q6	What are the topics of the questions brought up by teachers during tutorials? (Closed type) -2, -1, 0, 1, 2 (Open type)	Inspiring questions
Q7	If your trials such as animation pattern or content design are not understood by audiences, what do you feel about the attitude of your teachers? (Oppose) -2, -1, 0, 1, 2 (Support) Please suggest reason(s) or example(s).	Allowing Mistake
Q8	Do your teachers encourage you to cooperate with others? (Discourage) -2, -1, 0, 1, 2 (Encourage) Please suggest reasons (Indicate specific cooperative pattern and content, do you seek for assistance or cooperation).	Encouraging Creative Collaboration

Encouragement		
Q9	Do you think your ideas are always criticized or respected by your teachers during the discussion about your final year project? (Criticize) -2, -1, 0, 1, 2 (Respect) Please suggest reason(s) or example(s).	Encouraging Idea Generation
Q10	Do teachers request you to think of more possibilities while creating your subject? (Seldom) -2, -1, 0, 1, 2 (Often) Please suggest reason(s) or example(s).	Encouraging Idea Generation
Q11	How do you feel about the teachers' attitude towards innovation and breaking with tradition? (Forbid) -2, -1, 0, 1, 2 (Encourage) Please suggest reason(s) or example(s).	Questioning Assumption
Q12	What suggestions will teachers give you for balancing between following the production timeline and constantly improving the design during your graduation project? (Conservative) -2, -1, 0, 1, 2 (Aggressive) Please suggest reason(s) or example(s).	Taking Sensible Risk

Q13 Q13a	Do you think that teachers require you to be responsible for your decisions on various production design like character design or production methods when completing your final year project? (Yes/No) Attitude of teachers: (Very depreciate) -2, -1, 0, 1, 2 (Very appreciate) Please suggest reason(s) or example(s).	Teaching Self Responsibility
Q14	Do teachers encourage you to apply knowledge from other disciplines to your graduation project? (Discourage) -2, -1, 0, 1, 2 (Encourage) Please suggest reason(s) or example(s).	Cross Fertilization
Reward		
Q15	Do teachers provide you with information on the requirements of the final year project before commencing the development? (Yes/No/Do not know)	Reward Creative Idea or Products
Q16	Do teachers mention about requirements on creativity for the graduation project in the assignment brief or during tutorials? (Yes/No/Do not know)	Reward Creative Idea or Products
Q17	Do teachers indicate that creativity will be one of the judging criteria for the graduation project? (Yes/No/Do not know)	Reward Creative Idea or Products

Q18	Do you feel that your creativity and creative mindset will be appreciated by teachers when working on your graduation project? (Success is not necessarily displayed in the final deliverables) (Not at all appreciate) -2, -1, 0, 1, 2 (Very much appreciate) Please suggest reason(s) or example(s).	(Appreciation for Creativity and creative mindset)
Q19	What do you think about the degree of creativity of your final year project? (Very traditional) -2, -1, 0, 1, 2 (Very creative)	
Q20	Have teachers complimented you on your creative work? (Seldom) -2, -1, 0, 1, 2 (Often) Please suggest reason(s) or example(s).	

4.6 Data Analysis and Synthesis

Qualitative data analysis software MaxQDA was used for the coding process for the first batch of interviews. The first phase of the batch 1 coding process attempted to identify and note the common patterns in the data, and create codes that could be used to improve the developed conceptual framework. After incorporating the additional details into the conceptual framework, the second phase of the batch 1 coding process recoded the interviews by using key codes that were derived from the updated conceptual framework. Several data summary tables were created to address the research questions.

The second batch of interview questions was a survey employing a semantic differential approach. Both quantitative data and qualitative data were collected from the participants. The data collected from the second batch of interviews was plotted as frequency distribution charts for analysis. All the comments from the interviewees were also transcribed into text and input to MaxQDA for further analysis.

Throughout the data collection and analysis process, the issue of trustworthiness was carefully addressed. A research protocol was formulated before the start of the data collection process and data analysis process. The protocol governed the procedures to contact the potential research samples, how to address the research issues to prevent undue influence to the research participants and how to handle the collected data. Deliberate efforts were made to ensure the validity and reliability of the study. It includes employing more than one method to collect data and addressing inter-rater reliability by inviting colleagues to review the appropriateness of the coding process.

4.7 Chapter Summary

In summary, the chapter provided a detailed description of this study's research methodology. Qualitative case study methodology was employed to illustrate the perceptions of teachers and students on (1) the objective of animation education; (2) the meaning of creativity in animation education; (3) the curricula implemented in nurturing students' creativity; and (4) the methodologies have been used in nurturing students' creativity. The participant sample was selected from 10 universities that were strong in animation education and closely linked to the industry. The data collection methods employed including semi-structured interviews in the first batch

of interviews and telephone surveys in the second batch of interviews. Two batches of interviews were conducted owing to the fact that the first batch of interviews could not generate sufficient data to render a significant result on the research question 4, the second batch of interviews was mainly to fix this deficiency. 48 participants were involved in the first interview set and 44 participants were involved in the second batch of interviews. Validity and reliability were accounted for through various strategies, including sources and method triangulation. The data collected was analyzed and key findings were reported in the next chapter.

Chapter 5 Findings

5.1 Introduction and Overview

The rapid development of cultural and creative industries in China is inducing growth in the development of intellectual property. The animation industry also benefits from government policy support and is starting to develop and produce its own original productions. The change of the production direction of the animation companies to develop original titles creates a great demand for creative workers, and design education institutes become the obvious providers of these creative talents.

In the last decade, the number of undergraduate programs in the animation discipline in China has grown drastically with substantial support from the Government. The growth is quite promising in terms of number, but the quality of the programs has been questioned by many scholars. Moreover, in a survey conducted by Li (2010) on the "动画专业学生需要的能力得分排序" (Ranking of the ability required for the animation major students), she pointed out explicitly that "the higher education institutes consider creativity is important in animation education, but in a certain level, many higher education institutes are relatively single focus and lack support for a systematic and standard approach to animation education principles. How to

actualize nurturing “creative thinking” in the program and curriculum structure is a study that needs in-depth exploration” (Li, 2010:469). This study examined the perception of both teachers and students on the following research questions:

1. How do animation teachers and students perceive the objective of animation education?
2. How do animation teachers and students perceive the meaning of creativity in animation education?
3. What particular curricula do animation teachers and students perceive to have been implemented in animation programs to nurture students’ creativity?
4. What methods do animation teachers and students perceive to have been used by the animation educators in nurturing students’ creativity?

The study findings are organized in association with the four research questions. Further discussion on the findings is provided in the next chapter.

5.2 Findings for Research Question 1

Research Question 1: How do animation teachers and students perceive the objective of animation education?

Finding 1: An overwhelming majority of teachers did not cite any formal objective of the programs. The majority of them suggested aims of the programs were to train professional animation talents with production knowhow and practical skills. Almost half of the teachers in the interview explicitly said or implied in the discussion that the objective of the program was to prepare students for the workplace.

All the interviewed teachers taught in programs providing bachelor degree studies. These programs accepted students all over the country. All the interviewed teachers were major in animation discipline. They were also supervisors for the graduation projects. Half of them were program leaders and involved in the program development.

In the interview, the overwhelming majority of participants did not cite any formal objective of the program that was specified in their program documents. The majority of them talked about the objective of the programs as training professional animation talents. Although not all of them emphasized the purpose of vocational training or fulfilling the immediate demand of the market, most of them implied that the graduates should be good enough to take up positions in animation production. As suggested by interviewee Galen, he expected his graduates could fill up positions as directors and/or screenwriters:

> "The objective of students whose major is in animation is that they should be capable of participating in the production of professional animations as director or screenwriter-director" (Galen)[1]

Some of the teachers did not answer directly on the program objective, but they gave details of the program and the program structure. They all emphasized the studies that should provide students with a substantial foundational training in the animation process and production practices:

[1] "动画专业的目标，那当然就是如果一句话的话，就是他们能够从事动画专业创作的导演人才，编导人才。"

> "The animation production course is a three-year basic training with production practice, which provides students with a complete understanding of the whole animation production process." (Lewis)[2]

Almost half of the teachers in the interview explicitly said or implied in the discussion that the objective of the program was to provide adequate professional training in animation or related techniques for their future work:

> "Its main purpose is to train students who could then get employed relatively easier, no matter whether they are major in animation, 3D game or illustration as long as they are able to graduate." (Justine)[3]

Lewis mentioned that the program should produce talents with both creative and production abilities. However, he also emphasized that the primary focus of bachelor degree level training should nurture skillful production talents instead of high caliber creative talents like director:

> "For undergraduates, the main objective is to nurture students to be creative animation talents. However, this type of creative talent is not particularly high in level, as their education and experience are relatively weaker than the

[2] "動畫創作主要是讓學生經過三年的基礎訓練，包括動畫整個的操作過程，實踐的過程，通過動畫創作這門課，能完整的體現這個動畫的創作過程，讓學生完整的了解整個動畫的創作過程。"

[3] "主要是學生就業的時候，可以比較順利的就業，無論是動畫方面的，或者是三維遊戲方面的，或者是有點那個繪本插圖走向的，只要他能夠順利的畢業。"

master degree students. Therefore, what we need to nurture exactly are talents with production techniques… our main goal is to cultivate film and television creative talents, including production talents who then could adapt to the market nowadays." (Lewis)[4]

A few teachers considered the primary objective of the bachelor degree programs as to provide students with a quality education experience. These bachelor degree educations should prepare them for diverse developmental paths. Some might start working and some might decide further study. However, they also indicated that only a limited number of students might be able to continue their studies, thus they all agree that providing practical training was very important in the bachelor degree education.

"I think the kind of results we finally achieve with the whole curriculum of our school would be, first of all, the most basic requirement is to ensure a high quality undergraduate education system. This is very important. After graduation, each student will have their own development direction. Some may choose to study postgraduate school which now seems to be a shortcut that is a little bit better than a job. Other students will find jobs... This good undergraduate education system we provide will be very helpful when they take the entrance exams for postgraduate studies… we pay more attention to practicality; because I think in these circumstances, students going for

[4] "作為本科生來說, 主要是動漫方面的創作人才。創作人才相對而言是, 不是層次特別高的那種, 畢竟比起碩士研究生, 他們的學歷也好, 經歷也好, 都是比較弱一點的, 所以我們現在要培養的, 應該是創作和製作技術方面的人才 … 我們主要目標是培養能夠適應現在市場化, 電影電視創作的人才, 包括製作人才。"

postgraduate studies or not going to work are the minority. Most of them still have to work, even if it is only for two years before they go for some other development. That's why the basis of the curriculum should be very practical, so that when they go to work, they won't be knowing nothing after all their studies…. " (Claudia)[5]

Although some teachers disagreed with the purely vocational training approach in the animation education, vocational training might still nurture creative students if the market demands such type of creative graduates. However in the interviews, all those teachers expected the programs to provide adequate professional training in animation or related jobs, and all emphasized technical knowhow and practical skills in production.

Finding 2: Almost half of the teachers considered the major objective of the program were to provide more than vocational training, but nurture students with holistic development:

Although teachers agreed that the bachelor degree programs should offer professional knowledge and skills for the students and prepare them for work, some of them emphasized that animation education should not only provide vocational

[5] "我覺得我們學校這整個課程體系來給學生上課, 最後達到一個甚麼樣的結果呢, 首先一個最基本的, 就是要保證一個比較高品質的本科教育, 這個很重要, 就是說這些學生畢業之後各個方向的發展, 每個人不同, 有一些就是考研前, 這個目前來說好像捷徑一樣的, 比找工作要好一點的。另一部份是去找工作 … 我們給他們提供這樣一個很好的本科教育呢, 他考研的時候, 會很有幫助 … 我們更注重實用性, 因為我想在目前這種狀況下, 考研畢竟是少數, 不工作的也是少數, 大部份還是要工作, 那怕是工作兩年, 他再去發展別的, 所以這個基礎是必須很實用的, 他們去工作的時候, 不能說學了半天甚麼都不會 …"

training. It should offer students knowledge and understanding for their holistic development. Sidney talked about his expectation to the animation education, and he further emphasized that the program should not produce graduates that only serve for some particular industries:

> "We do not only provide training for work, we also pay attention to humanistic literacy learning with some corresponding courses, such as understanding of modern art, Chinese art history, history of animation and some basic principles. Through the accumulation of this kind of basic quality, students should possess some kind of ability for original production. They not only fulfill some kind of basic job requirements for production companies, but they could also serve in professional animation enterprises." (Sidney)[6]

Norah had a very precise expectation about university education. She believed that a university should provide a holistic development for students in cultural accomplishment, discipline knowledge as well as aesthetic innovation:

> "College education is to nurture students for comprehensive development. And for this major, first of all it is to cultivate them with higher human artistic accomplishment, which can master knowledge and ability in animation related fields. The most important is that our school emphasizes the nurturing of innovative artists who will be able to serve in the industry, or lead the

[6] "不仅仅是职业化得培训的角度,也重视人文素养的学习。这样的话,就有些相应的课程,比如说对现代艺术的了解,中国艺术史的了解,动画史的了解,和有一些基本理论的了解,将来会通过这样的一个基本素质积累,出去能有一种原创的能力,创作的能力,不仅仅是一个适合某种职业的基本的要求,需要一种基本的技能能够跟公司啊,还有一些专门的动画企业啊来对接起来。"

industry." (Norah)[7]

Mark considered the program should nurture multidisciplinary talents and leaders who possess forward looking vision. Multidisciplinary talents should possess interdisciplinary knowledge, and should be capable of applying this interdisciplinary understanding to animation creation and production:

> "In fact, we are training multi-discipline and outstanding talents for China's animation field. People say some students are applied talents, but ours are above the basic level. They must have deep thoughts and forward-looking ability... So the outstanding talents we train should lead or reinforce the future market. We call them advanced multi-disciplinary animation talents. If they only know about painting, or only engage in animation, this is not compound. Animation itself is an interdisciplinary, cross-field art form. They not only need to understand script-writing, directing, art design, scene design, photography, but they also need to know acting, painting, animation, time rhythm, and even software…" (Mark)[8]

Finding 3: Some teachers considered nurturing student with creative thinking style,

[7] "大學教育就是培育這種全面發展的人, 而對於這個專業來講, 首先就是培養他具備較高的人文藝術修養, 能夠掌握動畫相關領域的知識, 能力, 最重要是我們學校重視藝術創新性人才的培養, 將來能夠服務於這個行業, 可以引領這個行業。"

[8] "其實是為中國這個動畫的領域培訓最高端的複合性人才，優秀人才，有的人說是應用型的, 但是我們這種應用型的要在引領的基礎上。就是他必須得能有一種高瞻遠足, 有前瞻性的能力 … 所以培養的應該是將來引領市場的, 或者是為市場起推動作用那樣的優秀人才, 叫高級複合性動漫人才。這個複合的他不能是單一, 我只畫畫, 只可以搞動畫, 其他別的都不懂, 這個不叫複合, 因為動畫本身就是一個跨學科, 跨領域的一個藝術形式, 他不僅僅要懂編劇導演, 美術設計, 場景設計, 攝像攝影, 還要懂得動作, 原畫, 動畫, 時間節奏, 甚至軟件也要懂 …"

open-mindedness and originality to be the most important objectives for the programs.

> "From an educational or student point of view, a university should not just try to adapt to society, but should be more academic. So we hope that the students can establish their ideas, thinking and some relative concepts in school in order to open up their mind. When they master lots of skills after joining society, they can also have foresight and a forward-looking perspective on the profession. It is good for work. We are putting effort in this direction to let them elaborate design and creativity as much as possible.... I think we had better hope to stimulate the creativity of students and value the original design." (Venus)[9]

Hayden further elaborated what their program team expected was to nurture "young" animation artists who are open-minded and experimental:

> "We hope to nurture experimental and open-minded young animation art workers."Youth" is more profound in my impression, and then the other one is "animation art workers". Youth is not classified by the 18 -22 year age range, but it is more about having a certain youthful consciousness, in terms of the kind of perspective you should have to face China, society, the future

[9] "我们其实从教学的角度，或者是从为学生考虑，觉得，上大学呢，还是要学院一点，不能光为了适应社会做一些随大流的东西，所以还是希望学生在学校里把自己的思路，思维和一些相对的观念建立起来，思想能够放开，到社会上很多的技能掌握之后，而且能够对专业有一定的远见和前瞻的观念，对工作也是一种好处，如果我们也是在往这个方向努力吧，使得他们在设计方面，在创意方面，尽量多发挥。… 我觉得我们还是更希望来激发学生的创造力，看重原创的设计。"

development and your own professional background… having one's own unique perspective is, in fact, the most we hope to teach students, or hope to stimulate their youthful consciousness." (Hayden)[10]

Eddy also pointed out that their program did not pay too much attention to training students' technical skills, but what they emphasized was motivating students' interests in creation. Through this process, they could know their own strengths and weaknesses:

"In here, we rarely have pure technical courses.... For me, technical stuff means pure software courses that we hardly have. All of our software training is embedded in production classes or other lessons. If you're interested and want a more in-depth and systematic study of software, you can get it from other channels, such as summer courses or community training. In our school, the undergraduate curriculum structure is more about letting students participate in production, have a desire to create and go through the production process continuously. In these processes, they can get to know what they are good at, what abilities they lack, and then complement and enhance accordingly." (Eddy)[11]

[10] "我们期望培养的是有實驗性、有开放精神的這種青年动画艺术工作者。这里面我印象比较深刻的一个是"青年"，一个是"动画艺术工作者"。青年并不是因为他是 18 岁-22 岁这个年龄段而把他称之为青年，而是他有一定的青年意识，面向中国或面向社会，未来的发展，你该用什么样的视角去看这个社会，看待你的专业背景，这个可能会比较重要。… 你有没有自己独特的视角，这个其实是我们非常希望给到学生的或者是希望激发出来学生的青年意识吧。"

[11] "我们这边呢，就是从另外的一个角度来讲，对于纯粹的技术课程不多。… 我说的技术的东西，就是纯粹的一个软件的课程，几乎没有，我们所有的软件的能力，都是和创作课或者是某一门课程带着讲一些这种软件，然后你要是更深入和系统的学这个软件，你

Finding 4: A majority of students felt the objective of the programs was to produce animation talents by providing them comprehensive understanding of the animation production process and animation production techniques.

Almost all of the students had not given much consideration to the objectives of the programs in which they had enrolled. However, most of them have some kinds of personal objectives in enrolling in the programs. Almost all of the students had practiced drawing or painting for a number of years in their secondary schools. Animation was considered as a new discipline at the time of their enrollment. Most of them wanted to try something new and they saw animation as a newly developing area, and a promising discipline that could be further developed. Moreover, many of them really enjoyed watching animation, and their study in an animation program was purely based on their interest in animation. As claimed by Ashley:

> "It is mainly because I have loved comics since I was young, no matter whether they are Japanese or US comics. But I did't know much about comics at the time I applied for this course, I just felt that I loved it and wanted to draw comics when I was a kid." (Ashley)[12]

要更感兴趣的话，你可以从其他的渠道，比如所暑期啊，从社会培训啊，可以从其他的渠道去获得，我们从学校里面，本科的课程结构里面，更多的是，让他们不断的有创作，不断的创作，不断的有创作的欲望，然后就是有不断的创作的过程，在这个过程当中，来了解自己更擅长于做什么，然后明白更缺少什么，还缺少什么方面的能力，然后再在这个方面来补足和加强。"

[12] "主要就是小时候喜欢漫画，然后日本漫画，美国漫画啊，但是报的时候还不太懂这个，就是觉得看动画片挺好的，就报了这个，也算是喜欢吧，当时就是不太清楚，动画到底是要干什么，也不是特别的清楚，但是觉得漫画啊，都挺喜欢的，小时候也想画这种，看这种。"

A few of the students were not only inspired by their interest in watching animation, but were also deeply motivated by their strong desire to produce their own original animation. As said by Bert:

> "To me, drawing is the earliest art form that I was in touch with, then animation and graphic design, etc. I still remember when I first came into contact with animation, I was sure that it was not local productions. It was so nice that it made me have the passion and confidence to make one of my own. I might make some even with some Chinese elements. This is the reason why I decided to choose this course." (Bert)[13]

The overall impression from the students was that they did not know much about the program at the time of their enrollment. After four years of study, they learned some techniques in animation production and had also produced animation works, but they had not paid much attention on the objectives of the programs. Their common interpretation of the objectives of the programs was to nurture animation and produce animation talents. However, only a few of the students mentioned that the objective of the programs was to produce animation workers for the market. Most of students touched upon producing animation talents that could master the animation discipline and produce their own animation works. As indicated by Lauren:

[13] "就我本人而言,我是最早接觸的藝術形式應該是繪畫,然後才到動畫,後來才會有平面之類的,記得第一次看動畫的時候,就覺得…當時看的肯定不是國內動畫,就覺得人家做的東西非常好,有一種特別強的衝動就覺得,這個我也行,我也可以做出來,或者我也可以做有中國味道的東西。就覺得這個東西有意思,我入院之前就決定一定要選這個。"

> "As a whole, I want to produce an animation from pre-production, production to post-production independently." (Lauren)[14]

However, a few students had a more profound expectation of the objective of the programs. They believed that the programs should nurture animation professionals, and that these people should not only possess animation skills, but also the attitude and mindset to promote the standard of animation productions as well as the animation industry. As suggested by Isabell:

> "The aim of this program is to nurture professional animators. Students are taught not only at the operational level, but they are more focused on the pre-production stage with idea generation and artistic judgment as well as the whole development of this industry." (Isabell)[15]

No students mentioned words like "creativity", "innovation", "originality" or "creative", "innovative" and "original" when they talked about the objectives of the programs. One interpretation of this trend might be that they did not receive any information or expectations from the faculty concerning the demand for creativity in the program or subjects. If this information had not been transmitted by the teachers through various means like formal written assessment criteria or daily conversations in the tutorial session, it is quite likely that students would not be conscious of these

[14] "我觉得是，笼统的讲，就是想自己独立的完成一个动画片，从前期，中期，到后期制作，自己一个人独立完成。"

[15] "课程的目标是培养专业性的动画人才，而这个专业性的动画人才而不是局限于操作性，至少是那种，更多的是从理念上，从动画整个产业整个发展的角度上来培养的一些人，可能更多的是集中在前期而后期的话就是培养那种有指导性质的，就是有一定的审美的，而并不是完全去操作这种。"

factors as program objectives. Another possible explanation might be that teachers overemphasized the knowledge of production techniques and production process, so the first thoughts of students are all related to the professional understanding of the animation production instead of creativity and originality of animation production. Moreover, one more possible reason may be that students might not have clear concepts of the terms “creativity” and “originality” so they do not use these terms.

Finding 5: A few students saw the objective of the programs was to nurture students with comprehensive ability by including multidisciplinary studies.

Not all students shared the common understanding that the objective of the programs was to provide adequate training for professional animation techniques. A few of them actually considered the objective of their programs as to provide a comprehensive understanding in animation. According to them, a comprehensive knowledge in various aspects of art and animation would allow them to have a holistic understanding of this art form. They can select their areas of interests in the future for further development. Moreover, there were lots of crash programs for specialized training in various animation techniques, but subjects like animation aesthetics or art appreciation were relatively difficult to run in these crash programs. As mentioned by Bert:

> “In my opinion, the difference between the animation training or education offered by universities and that offered by companies is that those offered by universities focus more on the development of the overall artistic quality of students while those provided by companies mainly emphasize practical

training such as the use of 3D Max and Maya." (Bert)[16]

Furthermore, Patrick indicated the advantages of providing holistic studies in the program in giving students more possibilities of areas to explore:

"The objective of the four-year studies in the university is just like giving us a key… and providing us with opportunities." (Patrick)[17]

5.3 Findings for Research Question 2

Research Question 2: How do animation teachers and students perceive the meaning of creativity in animation education?

Finding 6: Some of the teachers mentioned that creativity should include novel elements and the others had diverse interpretations

When the participants were asked to define or describe their interpretations of creativity, some of them claimed that creativity should include novel elements. As Daniel said:

[16] "我覺得我們學院,他更看重的是一個學生他綜合素質的培養,就是你知道現在大陸有很多那種動漫或者美術培訓的那種課程,是由一些可能公司辦的那種,他們那些就跟我們大學的教育,最大的不一樣我覺得就是他們更側重於你實用技能的學習,比如你會用 3D MAX,你會用 MAYA,就是可能可以把你的某一項專業技能培養得特別好,做得特別熟練,但是他在你整個美術修養,包括其他的一些綜合素質方面,可能會比較忽視。像我們學校我感覺就是在這些方面就做得稍為多一些。"

[17] "學校的目標,我覺得就是我大學上了四年,給我大學可以更像是給了你一把鑰匙 … 而且給你可能。"

"The way of thinking which is different from that of the majority is creativity." (Daniel)[18]

Sidney further emphasized that originality was one of the important elements in creativity. He claimed that creativity was a combination of "novelty" and "message".

"Novelty could be interpreted as being different from others in aspects such as arts expression, image, color and style. It should contain originality as the basic element. Creativity is to make something out of nothing and present it in a way that has not been used by others through techniques, images or styles for expressing content. This content could be a simple story or a concept." (Sidney)[19]

Lewis also shared the idea that creativity should involve some kind of novelty. However, he interpreted creativity as a combination of "novelty" and "sense".

"To apply new ideas based on others' foundation is meant by creativity… creativity comes from how deeply we understand our daily life and culture, as well as how we tolerate and learn from other well-developed areas."

[18] "创意就是和正常的思路不一样。"

[19] "他就是差别化的，就是一看就跟别的不一样的。作为艺术表达，形象，色彩，风格，都跟别人不一样，他具备原创的基本要素，所以这个很容易判断。…"创"就是和别人不同的，无中生有就是创。"意"就是表达的内涵，这两个字表达一个，用别人没有用过的技巧，形象或者风格来表达一个内容，这个内容有可能是一个简单的故事，有可能是一个观念。"

(Lewis)[20]

Apart from being novel in nature, two participants also mentioned that creative ideas also need to be appropriate to the specified functions or accepted by the relevant party.

> "Whether your idea could be regarded as creative depends on its appropriateness. For instance, if I applied your idea on my performance or to meet a client's requirement, and it turned out that this idea is very suitable to be used for the case, this is a best example of creativity. Thus, creativity doesn't mean the author should be the first one who thinks of an idea or that it should be the newest idea." (Eddy)[21]

> "Creativity should be different from what others could think of and should not be seen frequently. But creativity should be acceptable by the public. As a whole, it should be original with positive meaning, and could benefit the development of the animation arts with good trial and performance." (Bobby)[22]

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[20] "所謂創意, 我覺得就是在別人的基礎上有了新的想法 … 所以所謂創意, 是對於我們生活, 對於我們文化的深入了解, 對於別人先進的地方的包容和學習, 來自這兩個方面。"

[21] "所以说你有些想法，关键是否它成为一个创意，我觉得首先看它是否合适，你这个点子我用在表现上，或者是客户需求上，我这个东西就非常的合适，我觉得这个就是一个最佳的创意。而不是说，它一定是第一个，或者说一定是最新的。首先是界定于，我在一个合适，匹配基础上，在他有一些新的表现，我觉得就可以了。"

[22] "創意就是跟別人不一樣的地方, 我的理解, 創新嘛, 創意就是創新, 所謂新就是和別人不太一樣的地方, 不是特別常見的東西, 但是首先這個創新的東西是被大眾…也不一定是大眾, 就被人接受的, 無論是大眾接受, 還是小眾的藝術圈接受, 總之比較新穎, 有積極意義的, 能夠對動畫藝術進行拓展和拔高的嘗試和舉動。"

Some of the other participants had totally different views on creativity. Justine saw creativity as a kind of ability that helps to express our ideas. She said:

> "I think creativity is to clearly voice out our idea."(Justine)[23]

A similar idea was also shared by Byron:

> "I think this student has a good thought, especially because he expressed the theoretical part in the film clearly; this is what I think is creativity."(Byron)[24]

Hayden drew on an example from his colleagues to explain creativity. He said:

> "We have a Taiwanese colleague who shared with his students his interpretation of creativity: if you could compile and optimize different conditions, then this is creativity. Thus, when he taught about creativity in class, he would draw a line to categorize "right" and "wrong", "good" and "bad". We should firstly do it right, then do our best, this is how he judged creativity." (Hayden)[25]

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[23] "我覺得創意就是把你自己想說的話，說出來，表達得很清楚。"

[24] "我觉得，他有一些好的想法，尤其是在片子中，比如说电影理论方面的，他把这个事说清楚了，这就是创意。"

[25] "我們有一個台灣同事，給學生講創意的時候，他認為的創意就是：你在現階段，你能夠整合的各方面的條件裡面之後，你把他最優化,就是最好的創意，所以他去講創意的時候，他會畫一個上線，就是「對」和「錯」,「好」和「懷」，我們創意首先要做到對,然後再去做到好，是這樣來去評估創意。"

Galen had an extraordinary thought about creativity. He believed that creativity should not just mean a creative idea. It should also include several stages from novel idea generation to implementing the final outcomes:

> "The first stage for interpreting creativity is that it is like an artist or an author who has his inspiration and spark generated from his educational background, self-possession, experiences as well as the special environment around him; he then further expresses himself through words and verbal expression. This is the second stage of creativity. The process of how to change the idea to the final product is regarded as the third stage of creativity. The final product could be a drawing, an animation film, a toy or a cup of tea, etc., or it could be a form. All these three stages are what is meant by creativity as a whole, no stage could be missed out." (Galen)[26]

Finding 7: No student provided any definition for the term creativity. A majority of students suggested that creativity should include something novel or something different from the others. A few students also emphasized that ideas could only be considered as creative if they were expressed and realized.

Some students stated that a creative idea should be a new idea that nobody had ever

[26] "如果非要把创意来形容的话，创意就是在一个艺术家，或者一个作者，受一些比如说他的学历，他的修养，他的经历，以及他的所见和他的特殊环境，或者说在某一个特殊环境，迸发出来的一些灵感，一些火花，但是这个可能是创意的第一步，创意的第二步，他再通过文字，通过口述，通过一种形式，使他能够表述到一定的程度，这是创意的第二步。创意的第三步，是通过这个创意，通过这个点子，变成一个完成的最后的一种形式，比如一幅画，一个动画片，一个玩具，或者是一个茶杯，等等，或者是一个形态，这才是一个创意的整体，我觉得这个是缺一不可的。"

talked about before. Jenna proposed:

> "Creativity is regarded as [something] others didn't ever think of or do before"[27] (Jenna)

Some students further suggested that creativity should also link with "surprise". A creative idea or a creative product should also give a surprise to others. As Ashley said, creativity should allow us to produce something. "Out of ordinary and you can think of something which is impossible for others to think of"[28].

Apart from novelty, some of the students suggested an additional condition for an idea or product that could be classified as creative. The additional condition was the recognition by others that the idea or product was "valuable" or "appropriate". As proposed by Herman: "Creativity is mainly related to novelty, it is different from what has been done… moreover it also needs to be accepted by others."[29] Maple also had a similar thought:

> "Creativity should be able to generate something new, useful and practical to our daily lives."(Maple)[30]

Although students did not provide any definition for the term creativity, they suggested that the outcomes of creativity should be something "novel" and

[27] "创意就是别人没想過的事情，或者别人没見過的做出來，就可能是創意吧"

[28] "与众不同，你能想到别人想不到的"

[29] "创意最主要的还是创吧，就是跟以前所有出现的都不一样 … 还有就是，创意要得到别人的认可，不是说你自己觉得自己很有创意但是别人都看不懂。"

[30] "创意那个东西，要有意思要新，要有用，用到生活中，或者是一个实际的事情上面。"

"appropriate". However, a few students also emphasized the question of whether these creative ideas could be realized or not. As they indicated, a creative idea could be fresh and promising. But if it only remained as an idea in the mind of a person and could not be applied and shared, it should not be counted as creative. Benson shared his point of view:

> "I feel that a creative idea is a new idea which is outside of others' expectation. Maybe everyone has some creative ideas, but if they just keep them to themselves then they should not be considered as creative. Only those ideas that are expressed and realized could be considered as creative." (Benson)[31]

Lauren also had a similar thought, but she emphasized that even though other people might have the same creative idea, not everybody is willing or able to implement this idea, so that only the one who could realize the idea could be considered as creative. He said creativity should be something that:

> "The idea that others could not figure out but you can, and it is an appropriate one. I guess other people might have similar thoughts sometimes, but they could not make it work but you can." (Lauren)[32]

[31] "我感觉创意是一个新颖的 idea，一个新想法，让大家眼前一亮，耳目一新，可能每一个人在生活上都有创意，但是有些东西，创意只有他们自己知道，只有把这些创意，拿出来，做出来，这才算是一个创意。"

[32] "别的人没有想到的，你先想出来，然后表达的比较的合适吧。我觉得是这样，你想出来，可能很多人都能想出来，但是你真正做出来，就不是所有人能够做出来。"

5.4 Findings for Research Question 3

Research Question 3: What particular curricula do animation teachers and students perceive to have been implemented in animation programs to nurture students' creativity?

Finding 8: Most of the teachers mentioned one or more subjects in their programs for nurturing students' creativity, however no details were provided by the teachers as to exactly how these subjects help in developing students' creativity. Moreover, no common pattern can be identified from these suggested subjects.

Norah mentioned a subject called "creative thinking" in her program. It utilized various small exercises to inspire creativity:

> "We have a subject called creative thinking. This subject, in fact, is intended to inspire creativity using many specific methods, such as graphics, imagination, association, and brainstorming. It is not a big project, but is a small one with inspiration on creativity. We have this kind of course." (Norah)[33]

Hayden mentioned that his program had a particular subject called "creativity seminar" for nurturing students' creativity:

[33] "我們有一門課叫創意思維, 課程其實就是啟發創意的, 用很多具體的手段, 比如說圖形, 想像, 聯想, Brain storm 這種形式, 它這個不是大的項目, 而是小的創意的激發, 會有這樣的課程。"

"There is a class called creativity seminar which is taught by one of our colleagues from Taiwan. It is open for all students, and it is not focused on animation. Creativity may be involved in each class or different classes, we didn't set up a class specifically for creativity." (Hayden)[34]

Kash said creativity could not be trained. It should be nurtured by inspiring students with seminars by famous speakers:

"For creativity, we usually invite some masters, relatively famous teachers from other schools or famous people in the community to deliver seminars. These are lectures, not practical training. All those can improve artistic quality through seminars." (Kash)[35]

Byron pointed out that his program curriculum using field studies to nurture students' creativity:

"Our creativity training consists of actually taking students to the countryside. I talked to them about Hayao Miyazaki's film "My Neighbor Totoro", previously, which is based on a true story. I led them to gain an understanding of how "My Neighbor Totoro" was done. The two children in the film are designed

[34] "有一门课叫创意大讲堂，是我們一个台湾的同事去教，各年级都会选修，而且不针对动画专业。可能每堂课里面或者不同的课都会涉及到创意的部分，並沒有說專門的那一段課會去講創意。"

[35] "創意一般都是講座, 比如說邀請一些大師, 或者是其他學校比較有名的老師, 或者社會上比較有名的人類, 進行講座, 這個只有講座沒有培訓。因為像是藝術性提高這塊, 都是通過講座來實現的。"

from prototypes of daily life. This is my way of thinking to bring them to the act of creation." (Byron)[36]

Some of the teachers considered creativity in the curriculum as being mainly in their production practice subjects:

"For creativity training, there is a practical lesson, called originality. This course was established in 2006. We now have a school-wide annual event and game. For the animation discipline, we have a competition called Original Character Design Contest which was initiated simultaneously with the course in 2006." (Claudia)[37]

"Creativity training is provided in the production class. But this production class will only start in the 1st semester of year four. That means it begins after they've already had the subject teaching professional basis and technique." (Justine)[38]

"In year three, students do an animated short film production. This is completely created by students' own creative sense." (Daniel)[39]

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[36] "创意上的培训实际上就是带他们去下乡。因为以前也给他们讲过宫崎骏的片子,《龙猫》它是真实的,我给他们看过这个,宫崎骏的片子《龙猫》是怎么做出来的。它的里面的两个小孩,都是生活中的原型设计出来的,我就是这样的一个思路,来带着他们去创作的。"

[37] "創意方面的培訓,有一個實踐課,就叫原創,這個課程也是 06 年有的,我們現在每年都要辦一個活動,比賽,全校性的,我們這動畫這邊有一個比賽叫動畫形象原創大賽,這個大賽是 06 年,當時有這個課程的時候就有了,就是同時衍生的。"

[38] "創意就是在創作課上,但是創作課是要到他們 4 年級上半學期,就是等於他們的專業基礎,還有技術都已經具備了以後,才開始這個。"

[39] "到了三年级之后,我这边有一个动画短片,创作,这个是完全靠学生自己的创作意识来制

A few teachers considered production as a good way to nurture students' creativity. By working through the process, students would encounter many problems and they could develop their creativity through resolving these problems:

> "Creativity is mainly discussed in production class. We talk to students about what kind of things can be made as a film, what kind of things can be a feature length film, what can be short films, what things are suitable for animation and what not. For instance, how to draw if we want to show a person's thinking in animation, we should use some other picture language, visual language to show this person's thoughts and his actions." (Mark)[40]

> "For our animation production, first, students need to choose a topic for deciding what kind of animation they are going to do. After choosing a topic, they are in the pre-production stage, which includes character design, scene design, as well as storyboard and color, etc. These are all one needs to solve in the pre-production. After solving all these, we begin the production. During the production process, students may come across a lot of strange questions, because most of us are doing paperless animation. Some are live action, collage or stop motion. Then, after that comes composition and audio etc. Anyway, some problems will occur in the process, and then students and

作。"

[40] "創意方面主要是我們在創作課的時候, 要跟同學講, 甚麼樣的東西是可以去做一個片子, 甚麼樣的東西可以做長片, 甚麼做短片, 甚麼東西適合做動畫, 不適合做動畫, 你比如說表現一個人的思想, 如果是在動畫裡去表現一個人的思想, 那怎麼去畫, 那肯定就要通過一些其他的手法, 把這個人的所思所想, 他的行為, 用另一種的畫面語言, 視聽語言把他表現出來。"

teachers will solve the problem together, and finish the work." (Camilla)[41]

Finding 9: Some teachers considered that the curriculum for creativity teaching should involve some kind of teaching methodologies embedded in the daily classes instead of some specific subjects in creativity training.

Fred clearly pointed out that creativity training should be embedded in the curriculum throughout the whole period of study:

"…for instance, some teachers may offer a course related to creative thinking or creativity. But I do not think this kind of class could ensure creativity development throughout the 4-year study period, as I think creativity training should be diffused among the whole period of study. If I had to revise it, I think teachers should make changes in the teaching curriculum to explicitly include nurturing creativity in every subject throughout the whole study period." (Fred)[42]

Lewis believed that students could learn to be creative by (1) understanding how the

[41] "我們這個動畫創法, 首先你要選題, 就是你要做一個甚麼樣的動畫, 或者做一個甚麼樣的東西/作品, 這個你需要選, 選完了之後進入到前期, 前期就是形象設計, 場景設計, 還有分鏡, 色彩等等, 這些你都要在前期解決, 解決完了之後才是開始中期的製作, 中期製作中, 也可能會蹤到很多稀奇古怪的問題, 因為我們大部份是做無紙動畫, 有一部份是弄實拍, 拼貼或者是拍定格的那種, 他會進入到拍攝。然後完了之後, 還有一個合成, 配音等等, 反正中間就會出一些問題, 然後我們同學和老師一起把問題解決掉, 最後出一個作品。"

[42] "… 比如有的老师在开一门跟创造性思维有关的、跟创意有关的课。但我觉得也还是没有好的延展到四年的教育之中，因为我觉得创意的东西应该弥漫在整体的四年生活之中…如果说那部分需要改善，我觉得我们作为教员应该改善，我们应该意识到，四年当中我们在任何一个课程裡，其實都包含了這個東西，不見得要把它剥离出来。"

other great creative works were developed and (2) applying their understanding into creative practice:

Both Galen and Lewis suggested ways to embed creativity development in their daily classes. Making the students have fun and use their imagination are what they had been doing in classes:

> "For example, Introduction to animation is the first course of the first semester in the first year. We will emphasize 'play animations', that is, drawing while you play. Then you think about it, I draw what I think is fun. You can draw any kind of things, such as contents, themes, forms, in a wide variety. And some contents are even unhealthy, but students like it. For instance, boys may draw some bloody things, or something erotic. There is actually no limitation from the teacher. The purpose is to arouse students' interest, and this is, in fact, developing their creativity." (Galen)[43]

> "Of course, in class, teachers are very creative. There are a lot of interesting things, for example, when our teachers teach modeling, they require students to consider the overall shape first, and not to fall into a particular part. Teachers will bring a bag with lots of toys inside and ask you touch it, and then you draw what you imagine it is. Sometimes it is relatively accurate, but

[43] "比如说像动画概论，是一年的第一学期的第一门课，我们就强调「动画」，就是在你玩的时候去画出来。那你想想，什么好玩，我画什么，你可以话各种各样的，内容啊，题材啊，形式啊，各种各样的，有些甚至都是内容都是不健康的，但是他喜欢，男孩子画那种特别血腥的，还有人画一点带有点色情的东西，但是这个时候老师其实都没有限制，就是给他一个比较好玩的兴趣，那这种其实也在培养他的创意。"

sometimes it is different from the original toy which means the student added in his own imagination. And also, this is the way to train students in an overall control." (Lewis)[44]

Finding 10: A majority of students mentioned some subjects that they considered helpful for nurturing creativity. These subjects include taught subjects like visual aesthetics, character design, body language and script writing. Almost half of the students suggested script writing was helpful in developing their creativity. Some of the students also mentioned that production subjects were most helpful in developing their creativity, because these subjects allowed them to create some sort of story and characters, and they could also deal with practical problems.

As Charlie said:

"I feel creativity nurturing should be in practical projects. Brainstorming, generating ideas and handling problems satisfactorily always involves lots of creativity." (Charlie)[45]

Similar suggestion also came from Isabell and Daisy, and they purposely indicated

[44] "當然在上課的時間, 老師們也很有創造性, 有很多的很有意思的, 比如說我們老師教造型的時候, 要求他們對這個造型的整體要先有一個把握, 而不是陷入到局部的策劃裡頭去, 老師會帶一個布口袋, 裡面裝了好多玩具, 讓你摸, 摸完了以後, 你把你想像你摸到的東西畫出來, 有的時候相對是比較準確的, 有的時候離那個東西本身距離比較遠的, 這個比較遠的就相當於加進了他自己的部分想像, 而且, 用這種方式去訓練學生有一個整體的把握。"

[45] "我覺(培訓創意)得還是在實際項目中,去解決一些問題,可能大家做一些頭腦風暴之類的,去爆發一些好的點子,怎麼把一個問題更好更漂亮的處理,這方面的會有很多創意在裡面, 那個是在項目中實際培訓。"

that production subjects should provide students with guidance and let them explore creativity in their interesting production works:

> "This program is to give guidance in creativity to students through animation production." (Isabell)[46]
>
> "I think nurturing creativity is providing guidance, for instance, you might have interest in an idea… " (Daisy)[47]

However, some students did not see the program as providing any subject that specialized in helping them to develop their creativity. Teddy suggested that creativity should be explored through their daily life. As he mentioned teachers would teach them something, and asked students to recreate the meaning through active exploration in their daily experience:

> "Creativity mainly depends on students themselves and their life experiences which is equivalent to their life exploration. Teachers only teach how to complete tasks, but the source of ideas is mainly from daily life, such as learning experiences, working incidents, views on a new concept or a redevelopment process." (Teddy)[48]

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[46] "创意方面，我们就是本身有动画创作，这个课程就是引导你"

[47] "我觉得(培訓創意)这个还是一种引导的方式吧，比如说你自己可能对某一个点很感兴趣 …"

[48] "创意方面还主要在于学生，平常生活学习。其实就是平时对生活的探索吧，在学校里，老师教一定的东西，只是一个模式，只会教你怎么去做，只会交给你一个方法，但是最具有灵感的东西，可能还是源于对生活的体验 … 他经过一段时间，比如说学习啊，比如说可能也会工作实习，他可能会对这个东西会有一个新的认识，他可能会是一个再创造的过程 …"

Penny even declared that teachers might sometimes hinder students' creativity in the school. He did not give details on particular incidence, but he claimed that his teachers did not give specific guidance to help him develop his thinking style:

> "In my opinion, I don't see teachers giving me any idea on creativity development, and sometimes they even suppressed my creativity, but luckily this situation happened relatively seldom… in the class, I do not feel that teachers have inspired my thinking or provided me with useful advice to expand my thinking style." (Penny)[49]

The overall feeling of the answers from the students was that they did not have a clear concept of creativity. They just tried to provide some kind of answers to the question. All students talked about production subjects as helping them to develop creativity, perhaps because these production subjects could offer them a chance to work on something that could be controlled by themselves, which might constitute a condition for them to create something or explore something new. The last comment from Penny also indicated that students demand at least an environment that was free from criticism and allowed them to explore.

[49] "我個人真的覺得創意方面,學校老師沒有帶給我任何東西,反而有時候還會壓制你,但是比較幸運的是這樣的情況還比較少 … 我覺得平時上課的時間,老師沒有給我往思考方面有任何啟發,沒有一個老師給到我這樣的 … 他們並沒有給很多有用的東西,或者是去開拓你的思維,引導你往更好的方面去思考,我覺得他們沒有。"

5.5 Findings for Research Question 4

Research Question 4: What methodologies do animation teachers and students perceive to have been used by the animation educators in nurturing students' creativity?

Both teachers and students suggested some ways to nurture creativity in education. The common emphasis from the teachers was to prevent the blocking of the development of students.

Finding 11: In nurturing students' creativity, a criticism-free environment is very important for them to generate creative ideas. A majority of the teachers claimed that they would respect students' decisions and should not force students to adopt their suggestions in completing the students' graduation project. Moreover, other teachers have very diverse recommendations for nurturing students' creativity. Some teachers suggested students to absorb more knowledge, to develop independent thinking ability, aesthetic appreciation, synthetic ability, self-confidence, association ability, analytical ability, and multidisciplinary knowledge. Some of the teachers also suggested that it is important to help students find their excitement, inspire and motivate them in exploration.

As explicitly said by Galen,

"The role of teachers is actually as a guide for students, but they should not request students to follow or obey their instructions."(Galen)[50]

Bobby further explained that as the graduation projects were students' own work, they should take the lead,

"It all depends on students' own participation, and teachers could not hold their hands and assist them in creation."(Bobby)[51]

Adam also claimed that if students had different opinions on his advice on the graduation projects, he would let the students use their own ways to complete the project,

"If students do not agree with my opinions, then they should follow their own ideas at last."(Adam)[52]

Finding 12: Although some students mentioned some support from teachers that might not relevant to developing creativity, a majority of students gave suggestions that were closely related to our conceptual framework. Students did not express any unified idea on the way the teachers help them to develop their creativity, but they had mentioned various ways that the teachers had been used to encourage them to be more creative. These include motivating and encouraging students, providing students with a supportive environment that allows their exploration, widening the scope of students in both cognition and knowledge, requesting

[50] "其实老师扮演的是帮助他的角色，老师不是说告诉他，你必须这么做，必须那么做。"

[51] "還是靠學生的主動性, 老師不可能手把手的幫他去創作。"

[52] "不同意的话，那就还是按照他们自己的来。"

student to look at things in different perspectives, and inspiring students by using different teaching approaches.

Alison mentioned that her teacher always had a positive attitude to her and made her feel no pressure in her studies. The teacher's continuous encouragement motivated her to work harder and proactively made up for her weaknesses:

> "Simply encouragement … he would not pinpoint seriously on my inadequacy. He would tell me in a very subtle way and make me feel comfortable. After receiving his encouragement, I was motivated to make up my deficiencies. (Alison)[53]

Wayne said his teacher encouraged him to widen his scope by reading more, advising him that knowing more should raise his aesthetic appreciation and save him from narrow-mindedness:

> "When you expose yourself to more, you can improve your aesthetic sense and it changes what you have possessed. You would know how to find your inspiration … you watch more and you will keep yourself fresh." (Wayne)[54]

Daisy described that her teachers did not prescribe her a fixed way of doing things.

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[53] "鼓励，很简单 … 然后你不足呢，他也不会特别的严厉的指出，他会，很平和的，让你特别的能够接受，然后就是以鼓励为主。那么你从一个方面，你取得了鼓励之后，你的弱点可能就会限制你么，然后你自然而然，自发的去弥补。"

[54] "你看的多了，审美就提高了，自己有的东西就变多了，会从别的创意里面去吸取灵感 …思维千万就是不要固化，就是多看的结果。"

Teachers would like her to have freedom to explore:

> "He would not frame us with certain thoughts … he would let us explore by ourselves." (Daisy)[55]

Benson also had a similar experience from his teachers. He mentioned that his teacher would not act like certain teachers who always emphasized right or wrong. His teacher provided students with a supportive environment and seldom limited them in exploring and expressing themselves:

> "He would not constrain the students much, he would provide us with a platform for expressing our strengths … he does not resemble some kind of teachers that always emphasize doing things right, he uses an encouraging attitude to discuss matters with me." (Benson)[56]

Oscar further indicated that different students might demand different types of learning approaches, but he really enjoyed a more open learning environment without too much value judgment:

> "I am not saying these courses are not good, I just mean that these courses might not suit me. What I wish for is that the course should provide more variety and be more open. It should not judge students with one single

[55] "就是他不會說給你個框架 … 而是讓你自己去發現。"

[56] "他就比較不會給學生很大的束縛,他在給我們上課的時候,他會給我們一個很好的平台,讓我們更好的去表現自己能力方面的東西 … 他完全不是像那種老師,說你這樣是對的,那樣是對的,他會用鼓勵的態度,去跟你說這件事情。"

standard … should give students more space for development. I suppose we can't be creative if we have so many restrictions." (Oscar)[57]

A few students also talked about their teachers using some creative teaching approaches that inspired them to develop creative ideas. Jenna had these experiences:

"My teacher is the type that is good at presentation and he could express himself very well. When I discuss with him, he always inspired me with new and interesting ideas." (Jenna)[58]

5.6 Quantitative Results for the Second Interview

In the second phase of data collection, a total of 44 students were interviewed. They had to complete a questionnaire with a semantic differential scale and also gave details or examples to support their choices. The purpose of the questionnaire was to collect adequate data both in quantitative and qualitative form that could be closely related to the conceptual framework. As suggested by Bloomberg & Volpe: "In a qualitative study, quantitative findings are secondary and are used to supplement and/or augment the primary qualitative findings" (2008). The quantitative information in the second phase can (1) indicate the statistical importance of the

[57] "因为我的意思，并不是说那些课程特别的差，我的意思是，哪些课程可能不适合我 … 我只是希望课程应该是多元化的，开放的，不应该是只在一条路上，用一种价值判断了，一种标准的 … 是应该学校给学生空间，我觉得，如果没有空间怎么会有创意呢？"

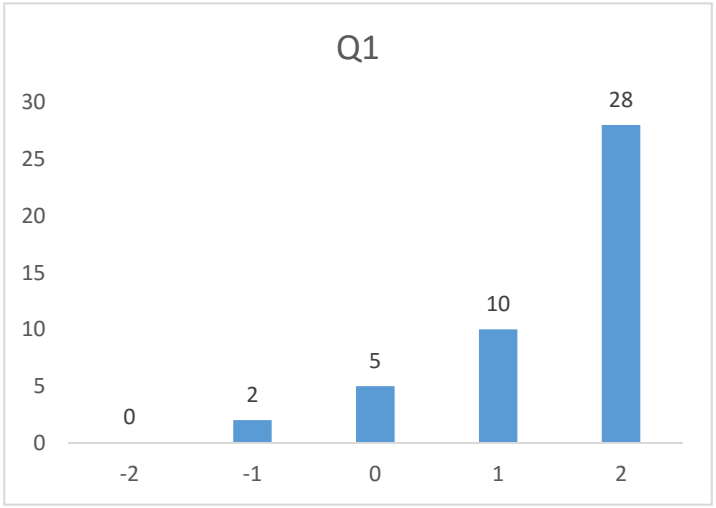
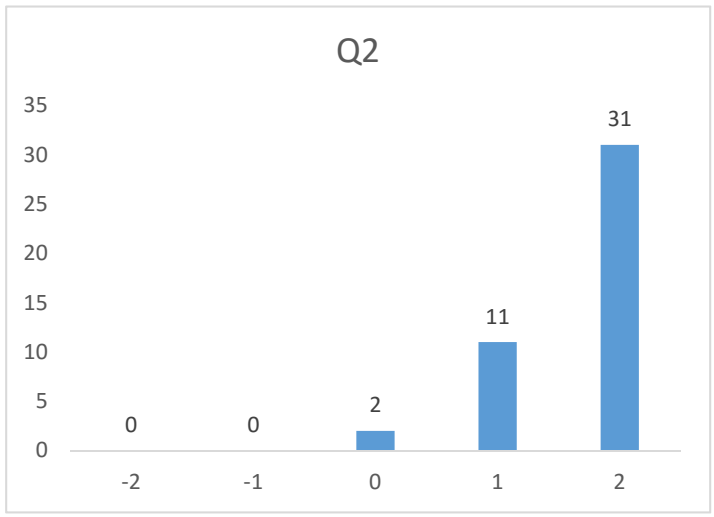
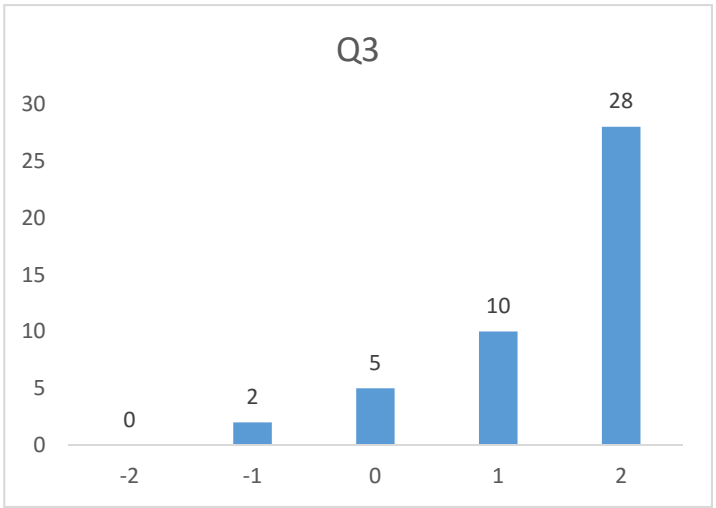
[58] "老师是属于那种，讲话的时候眉飞色舞的 … 自己还会表演，特别的好玩，他会给你讲一番，然后自己的脑海中就会有一些，比较新奇有趣的想法，冒出来。"

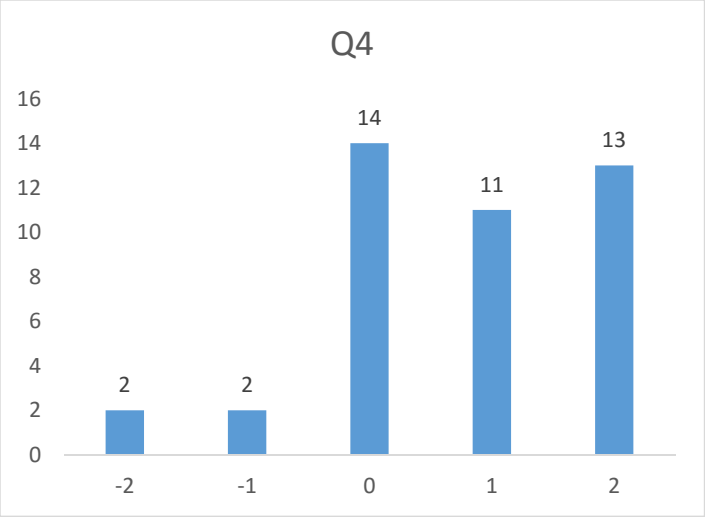
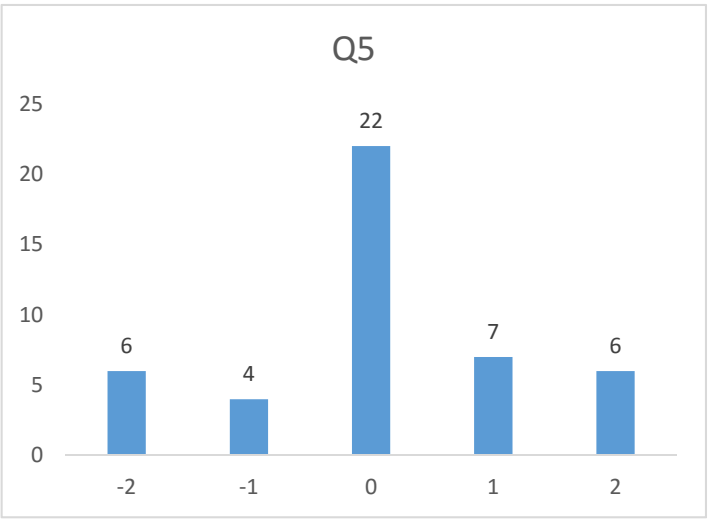
participants' interpretations and (2) identify the dispersive interpretations of participants. Above all, the qualitative data collected from the second phase can allow us to have a better understanding of the current approaches of teaching for creativity in animation education.

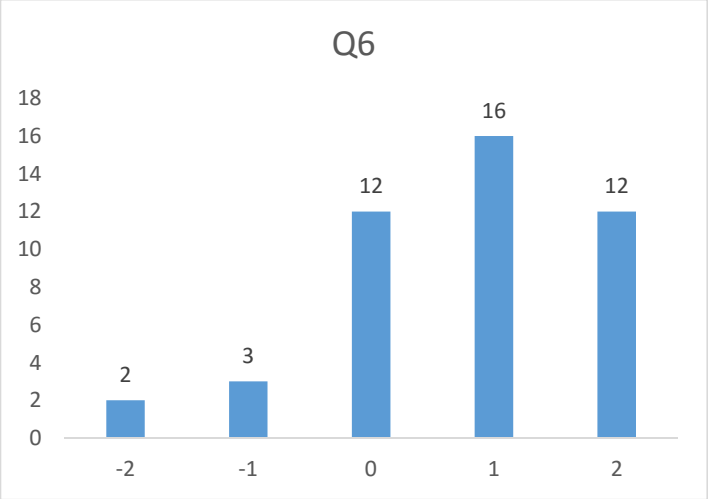
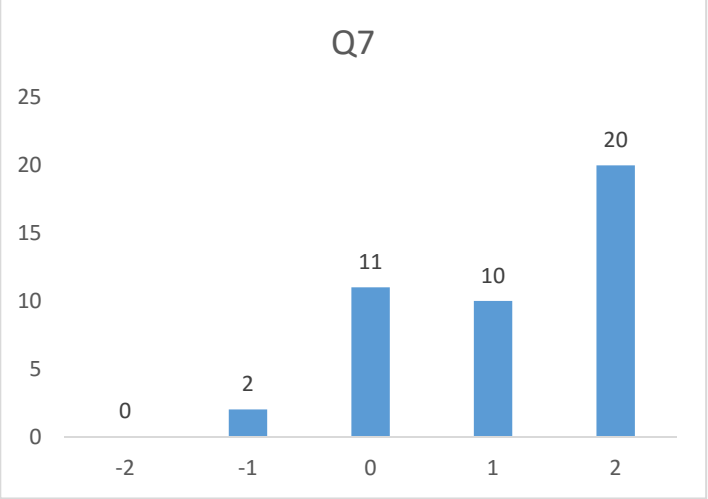
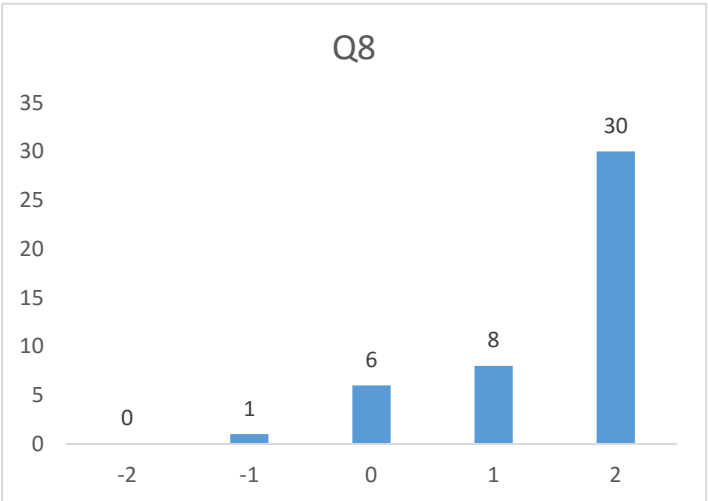
The findings from the second interview show the students' attitudes on the teaching approaches of the teachers. By reading the graphical result, three distinct patterns can be identified.

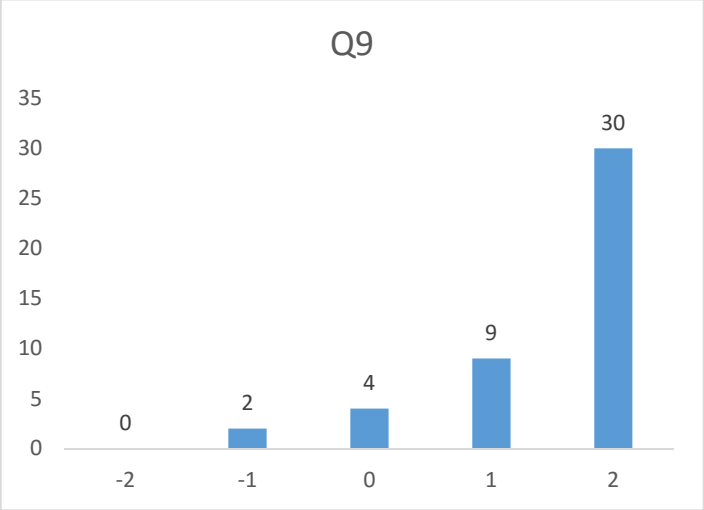
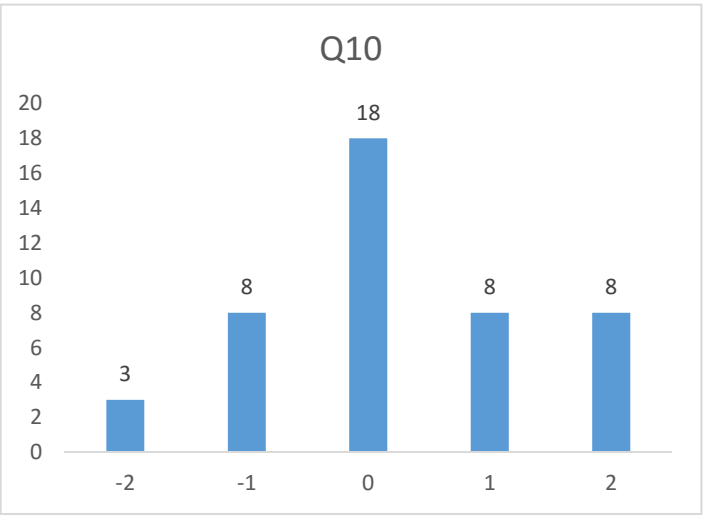
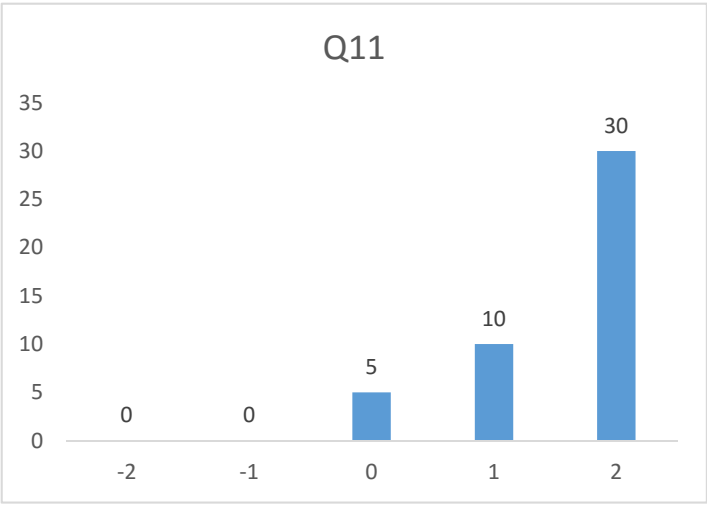
1. Students have consistent and positive attitudes on the teaching attributes on Building Efficacy, Defining and Redefining Problems (freedom of choice), Allowing Time for Creative Thinking, Encouraging Creative Collaboration, Questioning Assumptions and Rewarding Creative Ideas or Products.
2. Students have diverse attitudes on the teaching attributes on Tolerating Ambiguity, Instructing and Assessing Creativity, Asking Inspiring Questions, Allowing Mistakes, Encouraging Idea Generation, and Teaching Self Responsibility.
3. Students have diverse and negative attitudes on the teaching attributes on Taking Sensible Risks.

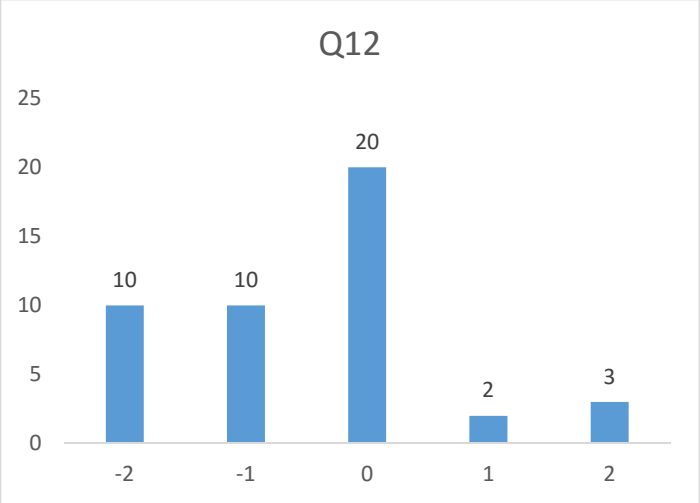
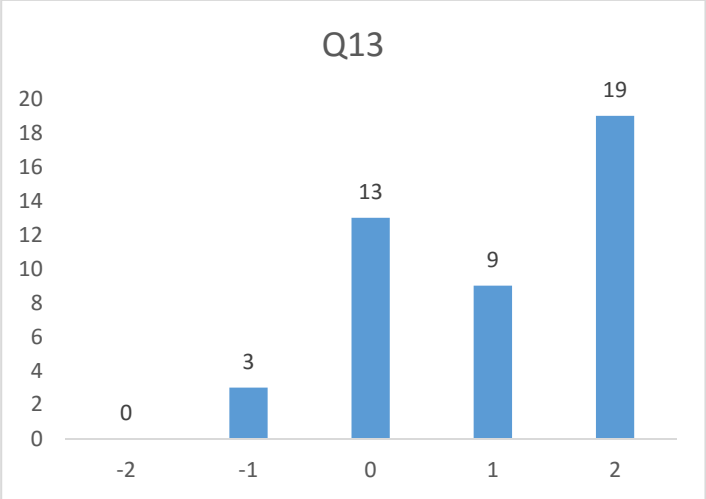
The graphical representation of the interview results and the corresponding questions are shown in the following.

Q1 Building Efficacy Have you ever felt that teachers sometimes unintentionally query you in a way that damages your self-confidence when you are conducting your final year project? (Absolutely yes) -2, -1, 0, 1, 2 (Absolutely no)	 **Figure 4. 1 Building Efficacy**
Q2 Defining and Redefining Problems (Freedom of Choice) Do you feel that your teachers provide you with a high degree of freedom when you are conducting your final year project? (Minimal) -2, -1, 0, 1, 2 (Maximal)	 **Figure 4. 2 Defining and Redefining Problems**
Q3 Allowing Time for Creative Thinking Do you feel that your teachers encourage you to spend more time in thinking and idea development during the production of your final year project? (Absolutely discourage) -2, -1, 0, 1, 2 (Absolutely	 **Figure 4. 3 Allowing Time for Creative Thinking**

encourage)	
Q4 Tolerating Ambiguity What do you feel about the requirements of your teachers when you encounter confusion in the stage of developing your project idea? (Actively oppose) -2, -1, 0, 1, 2 (Actively confront)	 **Figure 4. 4 Tolearting Ambiguity**
Q5 Instructing and Assessing Creativity Will teachers usually provide comments or bring up questions during tutorials? (Provide comments) -2, -1, 0, 1, 2 (Bring up questions)	 **Figure 4. 5 Instructing and Assessing Creativity**

Q6 Asking Inspiring questions What types of questions are brought up by teachers during tutorials? (Closed type) -2, -1, 0, 1, 2 (Open type)	 **Figure 4. 6 Asking Inspiring Questions**
Q7 Allowing Mistake If your trials such as animation pattern or content design are not understood by audiences, what do you feel about the attitude of your teachers? (Oppose) -2, -1, 0, 1, 2 (Support)	 **Figure 4. 7 Allowing Mistakes**
Q8 Encouraging Creative Collaboration Do your teachers encourage you to cooperate with others? (Discourage) -2, -1, 0, 1, 2 (Encourage)	 **Figure 4. 8 Encouraging Creative Collaboration**

Q9 Encouraging Idea Generation Do you think your ideas are always criticized or respected by your teachers during the discussion about your final year project? (Criticize) -2, -1, 0, 1, 2 (Respect)	 **Figure 4. 9 Encouraging Idea Generation (1)**
Q10 Encouraging Idea Generation Do teachers request you to think of more possibilities while creating your subject? (Seldom) -2, -1, 0, 1, 2 (Often)	 **Figure 4. 10 Encouraging Idea Generation (2)**
Q11 Questioning Assumption How do you feel about teachers' attitude towards innovation and breaking with tradition? (Forbid) -2, -1, 0, 1, 2 (Encourage)	 **Figure 4. 11 Questioning Assumption**

Q12 Taking Sensible Risk What type of suggestions will teachers give you for balancing between following the production timeline and constantly improving the design during your graduation project? (Conservative) -2, -1, 0, 1, 2 (Aggressive)	 **Figure 4. 12 Taking Sensible Risk**
Q13 Teaching Self Responsibility Do you think that teachers require you to be responsible for your decisions on various aspects of production design like character design or production methods when completing your final year project? Attitude of teachers: (Not appreciate at all) -2, -1, 0, 1, 2 (Appreciate very much)	 **Figure 4. 13 Teaching Self Responsibility**

Q14 Cross Fertilization

Do teachers encourage you to apply knowledge from other disciplines to your graduation project?

(Discourage) -2, -1, 0, 1, 2 (Encourage)

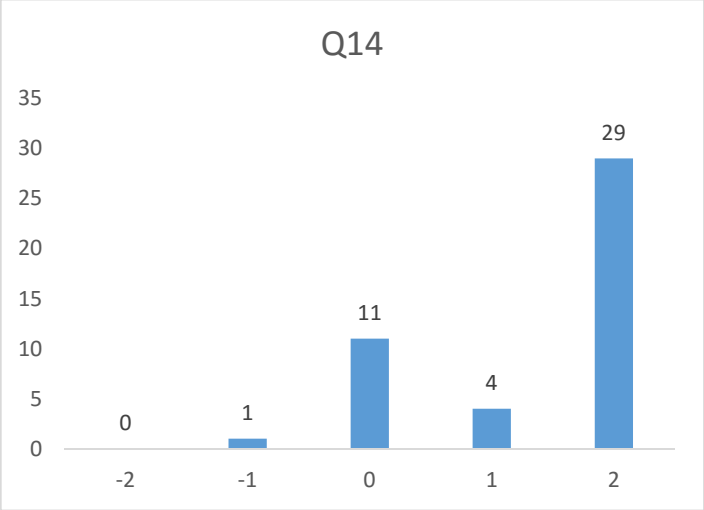


Figure 4. 14 Cross Fertilization

Q15 Reward Creative Idea or Products

Do teachers provide you with information on the requirements of the final year project before commencing the development? (Yes/No/Do not know)

Q15

Class	Frequency
Y	29
N	16
Don't know	0

Do teachers mention requirements on creativity for the graduation project in the assignment brief or during tutorials? (Yes/No/Do not know)

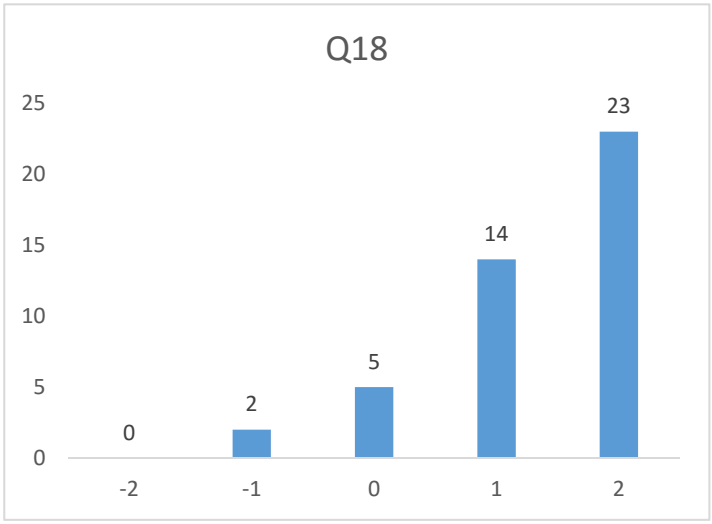
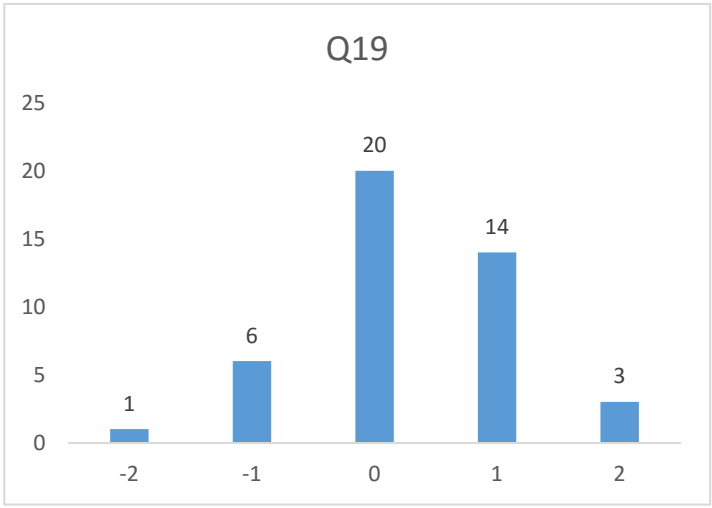
Q16

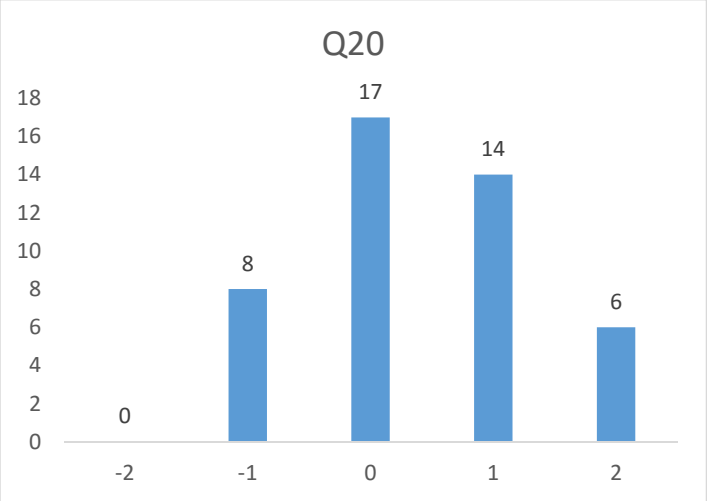
Class	Frequency
Y	23
N	20
Don't know	2

Do teachers indicate that creativity will be one of the judging criteria for the graduation project? (Yes/No/Do not know)

Q17

Class	Frequency
Y	19
N	22
Don't know	4

Q18 (Appreciation for Creativity and creative mindset) Do you feel that your creativity and creative mindset will be appreciated by teachers when working on your graduation project? (Success is not necessarily be displayed in the final deliverables) (Not appreciate at all) -2, -1, 0, 1, 2 (Appreciate very much)	 **Figure 4. 15 Appreciation for Creativity and Creative Mindset (1)**
Q19 What do you think about the degree of creativity of your final year project? (Very tradition) -2, -1, 0, 1, 2 (Very creative)	 **Figure 4. 16 Appreciation for Creativity and Creative Mindset (2)**

Q20 Have teachers complimented you on your creative works? (Seldom) -2, -1, 0, 1, 2 (Often)	 **Figure 4. 17 Appreciation for Creativity and Creative Mindset (3)**

5.7 Chapter Summary

This chapter presented 12 findings uncovered by this study. Findings were organized according to the research questions. Data from individual interviews and telephone surveys revealed research participants' perceptions and attitudes toward the understanding of the program objectives, program curriculum, teaching methodologies in nurturing creativity and the conception of creativity. As it is typical in qualitative research, the findings included extensive samples of quotations from the participants. By using participants' own words, it would allow the readers to get a better understanding of the reality of the persons and situation studied.

The primary finding of this study for research question 1 is that the majority of teachers perceived the main purpose of animation education as training professional animation talent with production knowledge and practical skills. The same perception was also echoed by students. However, some teachers also emphasized that animation education should also nurture students with creative thinking style, open-mindedness and originality.

The primary findings for research question 2 indicated that most teachers and students do not have a clear concept of creativity. Most of them cannot articulate or provide examples of their understanding of creativity. Moreover, some teachers and students suggested that novelty is important for creativity and a few of them pointed out that the appropriateness is also important.

The primary findings for research question 3 showed that no particular subject focused on nurturing creativity was implemented in the programs studied in this research. Some teachers mentioned that creativity training should be embedded in the daily classes and should not be singled-out as an independent subject.

The primary findings for research question 4 revealed that the majority of teachers and students perceived that providing a suitable environment for students to develop their creativity was important. The quantitative analysis also shows results that the students have a relatively unified perception on the teaching approaches of teachers on “building efficacy”, “defining and redefining problems”, “allowing time for creative thinking”, “encourage creative collaboration”, “questioning assumptions” and “rewarding creative ideas or products”. Moreover, the students have diverse perceptions of the teaching approaches on the issues of “tolerating ambiguity”, “instructing and assessing creativity”, “allowing mistakes” and “encouraging idea generation”. The findings also show that the majority of students have an attitude that teachers do not encourage, or even discourage “taking sensible risk” in their capstone project.

Chapter 6 Discussion

6.1 Introduction and Overview

The discussion chapter provides an analysis and interpretation of the findings in the previous chapter. The purposes of this multi-case study were to (1) explore the current situation of how animation higher education institutes nurture students' creativity; (2) understand how teachers and students perceive the meaning of creativity in animation education; (3) identify what teaching methodologies teachers are using in animation education in nurturing students' creativity; (4) generate knowledge to bridge the knowledge gap in nurturing students' creativity in animation education; and (5) suggest a theoretical framework to help animation educators to improve their teaching for creativity.

The research used in-depth interviews and telephone surveys to collect both qualitative and quantitative data from the participants. Participants in the study were drawn from 10 selected universities in Beijing. 48 participants were involved in the first batch of interviews and 44 participants in the second batch of interviews. The study was based on the following four research questions:

1. How do animation teachers and students perceive the objective of animation education?

2. How do animation teachers and students perceive the meaning of creativity in animation education?
3. What particular curricula do animation teachers and students perceive to have been implemented in animation programs to nurture students' creativity?
4. What methodologies do animation teachers and students perceive to have been used by animation educators in nurturing students' creativity?

These four questions were largely addressed by the findings presented in Chapter 4. The overriding findings in this study revealed that the majority of teachers and students perceived that the main purpose of animation education is to train professional animation talents with production knowledge and practical skills; the teachers and students do not have a clear conception on creativity; there is no particular subject focused on nurturing creativity and the majority of teachers and students perceived that providing a suitable environment for students to develop their creativity is important. The statistical findings from the second batch of interviews also indicated that students have unified perceptions on some attributes and diverse perceptions on others, as explained in more detail in the previous chapter.

6.2 Discussion of the Findings on Research Question 1

During the data collection period, only a few programs provided some set of documents about their programs or program curriculum. None of the programs publish sufficient information to gain an understanding of their program objectives in their program web sites. The insufficiency of documents on the program objectives and program curriculum prevented me from performing a comparison of their official program objectives. However, the lack of official information on the individual programs does not affect the results of the research. The official program objectives written in the program document are a set of standards that are used to derive the program outcomes and measure the program performance. If the program objectives are widely shared by the teachers and they are acting according to the program objectives in developing their teaching and learning activities, then the program document would be a very useful document to understand how students are nurtured in the corresponding programs. However, the majority of teachers and students did not have memory of the official program document and program objectives, indicating that the written program objectives are likely to have little or no influence to their understanding of the program and program objectives.

Since the teachers have direct daily contact with the students, their influence on the students is immediate and substantial. How they see the program and how they interpret the program objectives will directly shape the actual program learning outcomes. If the teaching approaches are effective, then the students should also share a similar understanding of the program objectives as interpreted by the teachers. The purpose of the first research question, “How do animation teachers and students perceive the objective of animation education?” is to try to identify the actual teaching and learning objectives of the current animation education in actual

practice. I would like to know whether nurturing creativity is included in the teaching and learning objectives.

From the findings of question 1, it is apparent that the majority of teachers and students perceived the main objective of the programs as training professional animation talents with production knowhow and practical skills. It shows that the interpretations of teachers and students are quite consistent in their understanding of the program objectives. Although most of them did not explicitly mention the term vocational training, many teachers implied in some kind of thought that they want to ensure their graduates should be readily employable. The inclination of the program direction towards vocational training might be due to the following reasons:

6.2.1 The immediate graduate employment rate is seen an indicator for the evaluation of the program performance

The Ministry of Education of the People's Republic of China uses the graduate employment rate as one of the measures for evaluating performance of higher education institutes. The graduate employment rate is directly linked to the development of the education institutes. Thus, whether graduates are readily employable or not will be among the ultimate concerns of the education institutes. Moreover, the employment figures of the graduates of the education institutes is also widely used in promoting the success of the respective programs.

The Ministry of Education issued a warning on employment prospects in selected disciplines in 2011. A red alert was attached to the animation discipline (中国大学生就业报告蓝皮书, 2011). This reflects that the discipline has a high unemployment rate and the average salary is the ten lowest among all disciplines. Moreover, at the time, this situation had already been lasting for two years from 2010 to 2011.

Based on research results from Xiao in 2011, there are 592 higher education institutes providing animation studies, including 275 bachelor degrees programs and 333 are in sub-degrees levels. This means that 28% of the higher education institutes in China provide animation related studies. The research further estimated that the total new enrolment of animation related students is around 45,000 each year. Normally they have to study for four years to complete a bachelor degree program or three years for a sub-degree program, thus the total number of students concurrently enrolled in animation education institutes would be around 150,000. Comparing the relatively slow growth of the animation industry to the rapid expansion of animation disciplines, keen competition for employment is expected (Xaio, 2011).

In order to ensure that graduates can find a job, teachers have a tendency to develop their programs to meet the immediate market demand. This situation is more obvious in those not so famous or popular education institutes or programs.

6.2.2 The rapid expansion of animation education produces many sub-standard animation programs

If the majority of animation education institutes are producing professional animators, then it is worth questioning why many scholars still complain that graduates from the animation education system do not fit their industry demand (sun, 2008).

Owing to the substantial support of the Government for the animation industry and animation education, many higher education institutes see this as a good opportunity to develop animation related programs. The number of animation education related programs increased drastically from 2 programs in 2000 to 447 programs in 2006, and 592 programs in 2010. (Xaio, 2011; 中國動畫年鑑, 2012). The rapid increase of

animation programs in these years has created several immediate issues on the development of animation education in China. These problems are mainly concerned with the lack of qualified teachers, as well as inadequate facilities and inappropriate curriculum structure in many animation education institutes (Li, 2010).

In order to tackle the insufficient number of qualified teachers to support the rapid growth of the animation education, the education institutes have devised some ways to resolve this problem. Firstly, they sent their teachers to reputable animation education institutes for intensive training. Secondly, they recruited practitioners from the animation industry to be their part-time teachers. However, these two measures have not been sufficient to offer a satisfactory solution to the program development. In addition, some education institutes wanted to catch up with the trend to offer animation education to students as soon as possible, and started their programs without sufficient consideration on the program details, related facilities as well as the employment prospects of the students. The development of animation education in China was seriously affected by these conditions (Wang, 2007).

Moreover, many programs developed under such a rushed situation ran into problems of inappropriate curriculum structure for nurturing animation graduates for the development of the animation industry. Owing to historical reasons, animation education is new to the higher education institutes. Most animation programs were developed based on the previous established strengths of the host universities. For those technology or engineering oriented institutes, the curriculum of their animation programs are filled up with technology related subjects like software studies or 3D animation techniques. For those art oriented institutions, the curriculum of their animation programs are filled up with lots of art related subjects like drawing and painting. The curriculum design of these institutes is largely based

on their resources instead of the market demand or the future development of the industry, which further complicates the problem of animation education development (Xiao, 2011).

Although China had a very glorious period in producing some excellent original animation titles in the 50s, the overall number of productions was still very small and the production capacity remained insufficient to develop as a sustainable industry. Owing to the opening up of the China economy in the 80s, the low labor cost attracted a lot of labor intensive OEM animation productions to move to China. The promising situation of OEM animation productions at the time initiated many companies set up for purely OEM production. This move created a big impact on the development of the original content creation in animation industry. The whole animation industry development in that particular period was redirected to OEM production (He & He, 2004).

Rapid economic development in recent years has made China lose her competitive edge in low labor costs. Some OEM animation productions have been moved to other Asian or Middle Eastern countries. Moreover, the great support from the Government in original animation productions creates an initiative for OEM companies to migrate to ODM or OBM productions. Many senior animation practitioners also voiced the importance of developing original titles in China (Sun, 2008).

6.2.3 The cultural and creative industries demand more creative talent in the production of original animation titles

The flourishing of OEM animation productions in the 80s brought with it a great benefit to the Chinese economy. However, it also created some drawbacks to the development of the animation industry in China. Owing to the higher salary offered

by the OEM companies, many experienced animators left the original animation production, which affected the growth of original animation development. In addition, OEM productions are subject to purely factory-style requirements, which does not encourage originality in the productions, so the animators developed in this environment do not possess any desire for creativity.

The development of creative industries is a global trend for both developed and developing nations. The success of the development of creative industries largely depends on a continuous influx of creative talents to the market. As the current animation industry that focuses on OEM productions does not reliably provide these creative resources, nurturing creative talents to fit the demand of the animation industry should be among the primary objectives of higher education institutes.

Modern animation production is multidisciplinary work. It demands talent with multidisciplinary understanding. It is understandable that there is no way to ensure that we can nurture a lot of multidisciplinary talent for the future growth of the industry. However we can ensure that different types and various levels of animation practitioners can be trained in our animation education system in order to meet the demand of the growth. So the higher education institutes should take a closer look at their strengths and weaknesses and reposition themselves in a particular area that they are good at. Moreover, rapid changes in a globalized world create enormous uncertainties for the future, so schools should produce students who are flexible and adaptable to future changes. Creativity is one of the key elements that can help students to be more flexible and adaptable.

The growth of the creative industries has inspired some OEM productions to migrate to ODM and OBM productions. ODM and OBM productions demand creative talents with original ideas. The current trained workers in the OEM productions do not

possess the inititiative of original thoughts. So higher education institutes with those particular strengths should take up this responsibility and put nurturing creative animation graduates as a foremost program objective.

6.3 Discussion of the Findings on Research Question 2

The objective of the second research question is to identify how the animation teachers and students perceive the meaning of creativity. As suggested by many scholars (Jackson et al, 2006), if teachers do not have a clear conception of creativity, it is very difficult for them to foster creativity in their teaching.

The questionnaires for both teachers and students included direct questions on the interviewees' understanding of the term creativity, and some more follow-up questions on this point have been asked in most of the interviews. However, very limited information related to creativity was collected from the interviewees, and most of them replied with very vague statements. Galen, for example, mentioned that creativity was some kind of inspiration generated from the education, self-possession, experience as well as the special environment around the artist. Hayden said creativity was also the ability to identify right or wrong, and good or bad. It seems that interviewees may have replied with such vague answers because they do not have a clear conception of creativity in their mind.

6.3.1 A Comparison of Teachers' Conception of Creativity

A similar study was carried out by Margaret Edwards, Chris McGlodrick and Martin Oliver (2006) in exploring the teachers' perspectives on creativity at Liverpool John Moores University and University College London in 2002. The research used a semi-structured approach and interviewed 32 academic staff and the general conclusions

were that creativity was not a well theorized concept, though some participants could indicate their understanding of the complexity of this concept, most of the others had problems and confusion with this concept. The findings on the conceptions of creativity are as follows:

- A quality of “new-ness” – however, newly-made stuff might not necessarily be creative, and what was no longer new in some particular context could be reconstructed imaginatively in others to produce a creative outcome.
- Original – creative work involved a “certain excitement: the Eureka feature”. It was felt to be “different” and interesting for the producer and for those who encounter the work.
- Related to traditions of work
- A break with tradition
- Different by degree – specific acts were judged as being more or less creative.
- Personally new – undergraduate attempts a creative work were, in general, considered to be less creatively significant than those produced by experienced academics, but it was considered important to give credit for trying to go beyond the boundaries of what a student had previously achieved.
- Expressed through a product – without some production, “creativity remains at … the imaginative idea level”.
- Recognized – it was felt that expertise in a domain was important in recognizing creative work.
- Useful – However, it was recognized that there could be a planned and deliberate separation of practical purpose from experimental work at the “prototype” stage.

- Ethical – some participants felt that certain creativity ought to be seen as good not just in some general, abstract way, but by being linked to morality.
- Trivial – some participants felt that almost every act a person takes involves an act of creation, so everyone is creative already.
- Hard – departing from familiar practice or cherished notions is perceived as being very difficult. Thus an important part of encouraging students and academic creativity involved the motivation to develop imaginative ideas into creative work.

(Edward, McGlodrick and Oliver, 2006)

The current research findings presented in this thesis also found that some teachers indicated that "novelty" and "appropriateness" were two important elements of creativity, but most of the others had confused conceptions of creativity. Similar results from the current study are shown in the following:

- A quality of "new-ness" – as Kash said: "… at least something new should be included."
- Original – as Sidney said: "Novelty could be interpreted as it is different from others in aspects such as arts expression, image, color and style. It should contain originality as the basic element. Creativity is to make something out of nothing and present it in a way that has not been used by others through techniques, images or styles for expressing content, this content could be a simple story or a concept."
- Related to tradition of works – Lewis said: "To apply new ideas based on others" foundation is meant by creativity … creativity comes from how deeply we

understand our daily life and culture, as well as how we tolerate and learn from others' well developed areas."

- A break with tradition – as Daniel said: "The way of thinking which is different from that of the majority is creativity. "
- Useful – as Eddy said: "Whether your idea could be regarded as creative depends on its appropriateness. For instance, if I apply your idea in my performance or to satisfy a client's requirement, and it turned out that this idea is very suitable to be used for this case, it is a best example of creativity. Thus creativity doesn't mean that the author need be the first one who thinks of it or that it should be the newest idea."
- Recognized – as Bobby said: "Creativity should be different from what others could think of and should not be seen frequently. But creativity should be acceptable by the public. As a whole, it should be original with positive meaning, and could benefit the development of the animation arts with good trial and performance."
- Expressed through a product – as Galen said: "… the process of how to change the idea to the final product is regarded as the third stage of creativity, the final product could be a drawing, an animation film, a toy or a cup of tea, etc., or it could be a form."

It is interesting in the current findings that students have some more comments on their understanding of creativity. Apart from novelty and appropriateness, students also suggested that creativity is personal, free from routine, incremental and common to all, etc.

6.3.2 A Comparison of Students' Conception of Creativity

Another study supported by the imaginative curriculum fund and led by Martin Oliver, Bharat Shah, Chris McGlodrick and Margaret Edward (2002) to investigate the perceptions of university students on the conception of creativity was conducted in the same period. The study employed semi-structured interviews. Students were asked about their understanding of creativity by identifying and describing creative people and things. They were also asked to talk about their experiences in the curriculum and assessment. The study interviewed 25 students in different disciplines and generated the following results.

The research discovered that "many students found it hard to explain what they thought creativity was. Rather than giving a coherent, integrated account, they typically drew on a number of different discourses, often presenting contrasting or even inconsistent positions at different points in the interviews"

(Martin et al, 2006:43) and the students also hesitated in their answers and apologized for their inconsistency in the answers.

A similar situation happened in the current study. Many students also found it difficult to articulate their understanding of creativity. Many students resorted to describing their understanding by using various examples.

The research results of Martin and his associates indicated that students' perceptions of creativity included:

- Freedom from routine – not being bound by conventions, schedules or expectations
- An expression of imagination – ideas of creativity were done or invented "in the head".

- Personal – something that could only have been created by that person and subjective.
- Independence – an escape from social conventions, rules or forms, and was thus primarily an act of individuals.
- Risk – something felt to be "synonymous" with being creative.
- Superficiality – being free from having to justify decision or creations
- Commonplace – everyone is creative, every day
- Infectious – something that can be caught by being with others who have it
- Incremental – small improvements rather than a radical break with tradition
- Original – creativity was something more than just repetition, associated with novelty or something that others could not see
- Radical – something creative should be entirely new and original, being unique or "groundbreaking"
- Being struck by the muse – something that you get at moments
- Metacognition – that being creative requires the ability "to step back and look about what you've done, kind of a personal grace, almost"
- Escape from reality – associated with a sense of detachment from day-to-day concerns
- Framed expression – idea of incremental novelty that people can recognize as being of a type (rule-bound)

Some similar common ideas were also suggested by the students interviewed in the current study:

- Free from routine – as Benson said: "First of all, we need an open-minded thinking

style … “

- Personal – as Wayne said: “Merely repeating other’s work cannot be classified as creative, you should build your own style, then it can be considered as creative.”
- Commonplace – as Summer said: “… everyone has their creativity, it is a matter of whether they are noticed by others or not.”
- Infectious – as Haylie said: “sometimes you might find a spark in your mind when somebody says something that inspires you.”
- Incremental – as Alison said: “You should work on the foundation of the ancestors, and you can create something new.”
- Originality – as Jenna said: “Creativity is regarded as what others didn't ever think of or do it before”
- Being struck by the muse – as Isabell said: “It is something to wait for, not to ask for. It is just like a flash of lightning.”

Beyond these parallels with past studies, some students suggested another two factors that have not been mentioned in the list of the previous research are appropriateness and recognition. Some students said that ideas or products classified as creative should not only be novel, but also be appropriate and recognized by others.

6.3.3 The Cultural Influences on the Conception of Creativity

In the previous two comparisons of Chinese teachers and students and their UK counterparts on the conception of creativity, I found that both groups share the same confusion and hesitation on the conception of creativity. The lack of understanding of the conception of creativity in higher education institutes is an important issue if we want to foster creativity in the higher education system.

Although there have been many common suggestions on the conception of creativity both from teachers and students, I can see some important suggestions from participants in the UK studies that have not been addressed by the Chinese participants like, “an imagination of expression”, “risk”, and “independence”. On the other hand, the frequently mentioned “appropriateness” or “value” that emerged in the Chinese context was not mentioned by the UK students.

As suggested by Kim (2007), creativity is influenced by various factors. Apart from the personal domain, creativity is also affected by other social factors and culture. Owing to the difference in the cultural context, creativity would be understood and valued differently (Paletz & Peng, 2008). As culture can be understood as a set of conventionalized learned routines, and it serves to coordinate the social behaviors of the individuals within that society (Chiu & Hong, 2006). The different conception of creativity by the Chinese participants might be explained in part by their cultural background.

Culture can be defined as “an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms by means of which men communicate, perpetuate, and develop their knowledge about and attitudes toward life” (Geertz, 1973, p.89). Niu and Sternberg (2003) proposed in cross-cultural studies, the Core Societal Values shall be studied in order to understand the differences between social groups with respect to individualism and collectivism. Western societies that favor individualism tend to emphasize an independent perspective of the self. Behavior and value judgments are mainly made reference to the individual’s internal thoughts instead of his or her relationship with others or with society at large. As Asian cultures tend to value collectivism over individualism (Kim et al, 2011), people in Eastern societies incline to favor an interdependent perspective

of the self and try to become part of various personal relationships. The societal values, as suggested by Niu and Sternberg (2003), shape individual creativity through (1) influencing the understanding of creativity, and (2) these values further influence individual creative performance.

Moreover, Confucianism dominates the development of Asian cultures (Chaves, 2002), and serves as the point of reference for the core values, traditions, ethical and moral foundations of Chinese society (Kim et al, 2011). A Confucianist world view tends to prioritize the acquisition of societally-ordained "correct" knowledge on education and limits initiatives in generating new idesa (Ho & Ho, 2008; Martinsons & Martinsons, 1996). This might explain why the Chinese teachers and students interviewed in this study tended to emphasize knowledge acquisition and appropriateness in their program objectives in the conceptions of creativity.

6.4 Discussion of the Findings on Research Question 3

When both teachers and students were asked to identify components of the curriculum that had been implemented to help nurturing students' creativity, most of the subjects they suggested were not specifically for nurturing creativity. There might be an implication that the teachers might not ever consider nurturing creativity in their classes or in the program.

In answering research question 3, there were no teachers who indicated that they did not have any idea about what creativity is. Most of them tried to provide information on some subject content or subject approaches in nurturing creativity. However, some of them were quite hesitant in their suggestions or offered broad or vague answers without much detail. The reaction of the teachers might imply that nurturing creativity is not an explicit or conscious element in their classes or in the program. If

the teachers have personal experience in developing subjects in their classes, they should be able to give some details on their own experience. Moreover, if nurturing creativity were one of the components in the program, they should be able to articulate what had been done to integrate it into the curriculum, even if the planning or teaching of that component was not conducted by them.

A few teachers mentioned that nurturing creativity should not be considered as an independent subject. It should be embedded in the daily classes. It is also agreed by many scholars that students' creativity should be nurtured as a habit and some scholars even considered it as an attitude in decision-making (Sternberg and William, 1996).

In Chapter 4, the findings indicated that most of the teachers and students did not have a clear conception of creativity. Without a clear conception of creativity, it is unlikely that the teachers could devise a proper way to foster creativity in animation education (Jackson et al, 2006).

6.5 Discussion of the Findings on Research Question 4

The findings on research question 4 were generated by two batches of data collection. The first batch of data used semi-structured interviews to collect qualitative data, while the second batch of data used a telephone survey to collect both quantitative and qualitative data.

6.5.1 Teachers' Perception on the Teaching Methodologies

Research question 4 aims to understand what methods animation teachers are using in nurturing students' creativity. The findings on research question 4 show that teachers' main concern is to provide a criticism-free environment and avoid asking

for conformity from students. This type of environment can facilitate students in developing their creativity.

This phenomenon might be explained by the previous discussion on the cultural influence on the conception of creativity. Collectivism has long been a core value in Chinese society. Under the influence of collectivism, educators tend to emphasize the teaching of knowledge and analytical skills and overlook the importance of creativity teaching. This results in situations in which Chinese students have limited opportunities to participate in truly creative activities (Niu & Sternberg, 2003).

The emphasis of teachers in offering students opportunities in developing their creativity might well reflect the situation that few opportunities had been provided to students in the past. However, in the practice of nurturing students' creativity in education, only through providing opportunities for them is far from adequate. It is also necessary to encourage them to engage in creative activities and reward them for their creative efforts (Sternberg & William, 1996).

6.5.2 Students' Perception on the Teaching Methods

The findings from the students reveal some more information on the methods used by teachers to nurture students' creativity. These include motivating and encouraging students, providing them with a supportive environment that allows exploration, widening the scope of students in both cognition and knowledge, requesting students to look at things in different perspectives, and inspiring students by using different teaching approaches.

The above list covers some approaches that address the "opportunity" and "encouragement" issues in nurturing students' creativity. These approaches are also closely related to factors in the conceptual framework.

6.5.3 The Second Batch of Interviews

Owing to the insufficient data collected from the first batch of interviews on the perception of teaching methods in nurturing students' creativity, a second batch of interviews was conducted by telephone survey with a group of recent graduates. The survey employed semantic differential scale questionnaire to collect data on the attitudes of students toward the teaching approaches of their teachers. Moreover, the interviewees were also requested to provide examples or comments on the answers they provided for further triangulation and analysis purposes.

The analysis from the first batch of interviews shows that students do not have a clear conception of creativity. In order to avoid any error resulting from different interpretations of terminologies, the interview questions focused on the individual factors that contribute to the teaching of creativity. The list of factors that form the conceptual framework was consolidated from the literature review and further refined by the results of the first batch interviews.

The conceptual framework is divided into four categories of factors namely Creative Thinking Styles, Independent Personality, Intrinsic Motivation and Supporting Environment. Each category includes some related factors (Appendix 6).

1. Creative Thinking Style

- Allowing time for creative thinking
- Defining and redefining problems (allow students to make decisions)
- Questioning assumptions (how students think and how they ask)

2. Independent Personality

- Building self-efficacy (ensure student's ability)
- Encouraging sensible risks (take intellectual risks)
- Teaching self-responsibility
- Tolerating ambiguity (creative ideas come up by bits and pieces)

3. Intrinsic Motivation

- Instructing and assessing creativity (ask stimulating questions)
- Rewarding creative ideas and products

4. Supporting environment

- Encouraging idea generation (free of criticism)
- Cross-fertilization and encourage creative collaboration
- Allowing mistakes

The survey offered 20 questions which cover the 12 factors from the above list. Some factors are covered by two questions. The order of the questions is based on the factors that contribute to the attitude building – "opportunity", "encouragement" and "reward" as suggested by Sternberg and William (1996).

<u>Opportunity</u>

Q1. Have you ever felt that teachers sometimes unintentionally query you in ways that hurt your self-confidence when you are conducting your final year project? **(Building Self-efficacy)**

Q2. Do you feel that your teachers provide you with a high degree of freedom when you are conducting your final year project? **(Defining and Redefining Problems)**

Q3. Do you feel that your teachers encourage you to spend more time in thinking and idea development during the production of your final year project? **(Allowing Time for Creative Thinking)**

Q4. What do you feel about the requirements of your teachers when you encounter confusion in the stage of developing your project idea? **(Tolerating Ambiguity)**

Q5. Will the teachers usually provide comments or bring up questions during tutorial? **(Instructing and Assessing Creativity)**

Q6. What are the topics of the questions brought up by teachers during tutorials? **(Instructing and Assessing Creativity)**

Q7. If your trials such as animation pattern or content design are not understood by audiences, what do you feel about the attitude of your teachers? **(Allowing Mistakes)**

Q8. Do your teachers encourage you to cooperate with others? **(Encouraging Creative Collaboration)**

Encouragement

Q9. Do you think your ideas are always criticized or respected by your teachers during the discussion about your final year project? **(Encouraging Idea Generation)**

Q10. Do teachers request you to think of more possibilities while creating your subject? **(Encouraging Idea Generation)**

Q11. How do you feel about the teachers' attitude towards innovation and breaking with tradition? **(Questioning Assumption)**

Q12. What suggestions will teachers give you for balancing between following the production timeline and constantly improving the design during your graduation project? **(Taking Sensible Risk)**

Q13. Do you think that teachers require you to be responsible for your decisions on various production design like character design or production methods when completing your final year project? **(Teaching Self Responsibility)**

Q14. Do teachers encourage you to apply knowledge from other disciplines to your graduation project?

(Cross Fertilization)

Reward

Q15. Do teachers provide you with information on the requirements of the final year project before commencing the development? **(Instructing and Assessing Creativity)**

Q16. Do teachers mention about requirements on creativity for the graduation project in the assignment brief or during tutorials? **(Instructing and Assessing Creativity)**

Q17. Do teachers indicate that creativity will be one of the judging criteria for the graduation project? **(Rewarding creative ideas and products)**

Q18. Do you feel that your creativity and creative mindset will be appreciated by teachers when working on your graduation project? **(Rewarding creative ideas and products)**

Q19. What do you think about the degree of creativity of your final year project?

Q20. Have teachers complimented you on your creative work? **(Rewarding creative ideas and products)**

6.5.4 Discrepancy in the Second Batch of Interviews

An analysis was done after the second batch of interviews. The quantitative data collected from the interviews was plotted as a graphical presentation which allows a

better visualization and understanding of the distribution of data. Simultaneously, the qualitative data collected from the interview was also used for triangulating the quantitative result.

I found that there are some major discrepancies in the data sets in Q1. In some cases, the scores given by an interviewee contradicted the same interviewees' comments or examples. These contradictions only happened infrequently in some other questions, but for Q1 this occurs 7 times and most of all, the individual discrepancy in this question is significant. The discrepancies in Q1 are shown below:

Q1. Have you ever felt that teachers sometimes unintentionally query you in ways that hurt your self-confidence when you are conducting your final year project? (Absolutely no) -2, -1, 0, 1, 2 (Absolutely yes)	
Scores	Examples or Comments
1	Sometimes I will be praised but sometimes I will be criticized such as whether the project should be drawn bigger or produced in a comic style which made me feel like I am being suspected. (The comment shows that the student really felt the teachers were skeptical of his ability in making right decisions which is contradicts the score of 1)
1	I had never learned stop motion animation before and wanted to have a try, but teachers commented that it might be impossible. (The comment shows the student was queried by the teachers about his

	ability to learn stop motion animation, which contradicts the score of 1)
1	My project is an experimental watercolor painting, teachers were a bit worried because this type of project hasn't been done before. (The comment has already addressed the worry of the teacher but the interviewee still gave a score of 1)
1	Teachers rejected the first script as not good enough, not special and a bit difficult to get done. (The comment has already indicated the disagreement of the teachers with the student's work, however the student still gave a score of 1)
1	Scripts have been rejected a few times, and I hadn't learned stop motion animation before, so my teacher was a bit worried that the project could not be completed. (The comment indicates that the teacher rejected the student's script several times, which contradicts the score given by him)
2	I didn't communicate with my teacher as I have been working on my script (Since the interviewee has not contacted his teacher, he could not give a fair judgment on the teacher's attitude)
2	I do not have much communication with my teacher (Similar situation as the above case)

Based on the comments the students made, the scores were adjusted accordingly. The original and the adjusted graphs are shown as follows:

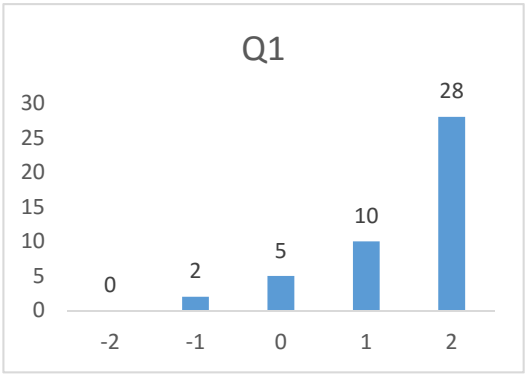


Figure 5. 1 - Figure showing the original score

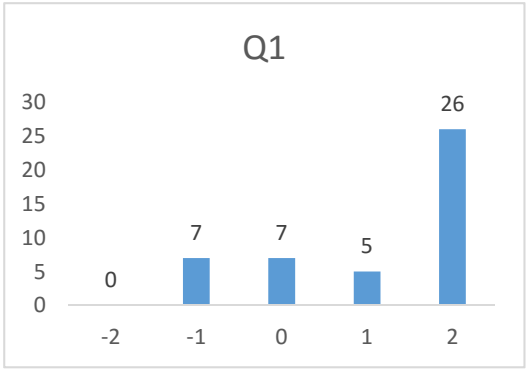


Figure 5. 2 - Figure showing the adjusted score

After a thorough consideration of the interview process and method, I decided to use the original data set instead of the adjusted data set. The argument is that the survey was conducted through telephone, and each interview question and the rating scale were explained properly. Each interview question is meant to collect an overall impression of the students' perception toward the teachers' teaching approaches. The supplementary comments and examples recalled by the students should be treated as some individual evidence to further explain or support the students' choices. If the score selected by the students does not appear to agree with his or her comment, then the score should prevail. However, these discrepancies should be remarked on when reporting the results of the research.

6.5.5 Implications of the Findings in the Second Batch Interview

The major purpose of the second batch of interviews was to understand the students'

attitudes on the teaching approaches of the teachers. The questions were formulated according to the 12 factors of the conceptual framework. The statistical results show three types of attitudes towards the teaching approaches of the teachers that worth to take a closer study:

Type 1 Attitude

Self-efficacy is a concept of psychology that is associated with the strength of confidence with which a person believes in his ability to complete a task or reach a goal. It can also be viewed as the persistence of a person in completing a work and affecting the decision making of a person in facing challenges. By helping students to build their self-efficacy, teachers should not express or imply limits on students' potential accomplishment. Like some students mentioned, "Scripts have been rejected a few times, and I didn't learn stop motion animation before, so my teacher was a bit worried that the project could not be completed at last", "the process is a bit long, other teachers might suspect as they might not understand the whole picture when the final deliverable is not ready". Since creativity is built on questioning assumptions and risk-taking, if we cannot cultivate students' self-efficacy to challenging assumptions and take sensible risks, then they might lack the persistence to succeed in their creative accomplishment. The finding shows that students perceived that teachers do not create negative effects on their self-confidence.

To encourage students to define and redefine their problems is to give them freedom of choice and provide opportunities for them to develop their creative thinking style. Creative thinking style means the preferred ways of thinking and a decision to think in a new way. The concept of creative thinking style does not emphasize the *ability* to think in a new way, but rather the *intention* to think in a new way. By encouraging

students to define and redefine their problems, they learn to take initiative to deal with their own problems and they should also notice that they should approach their problems from multiple perspectives. The finding shows that students perceived that teachers provide them a high degree of freedom.

Allowing time for creative thinking is important due to the fact that creative ideas need time to cultivate and develop. Without adequate time for creative thinking, one can only produce ordinary ideas or solutions for problems. If we want students to generate some extraordinary ideas or works, then we ought to allow them to spend adequate time in their work. However in most of our practical work and especially the assessment requirement, there is a time constraint for students to complete their project. To “play it safe” in ensuring that students are able to complete a project within an allotted time frame, teachers might not encourage, or might even discourage, students from considering some more interesting or creative ideas in their work. Over-emphasizing the importance of completing the work in a tight time-frame and undermining the importance of allowing time for creative thinking might kill creativity in the classroom. However it is a good phenomenon that the finding shows the students perceived that teachers encourage them to spend more time in thinking and developing idea in their final year projects.

Encouraging creative collaboration can enhance cross-fertilizing of ideas. For our traditional education system, curriculum design always tends to separate disciplines into subjects. This might create an impression that learning occurs in discrete boxes. Encouraging creative collaboration can stimulate students’ creativity by helping them to think across subjects and disciplines. It also provides opportunities for students to share different viewpoints. The finding shows that students perceived that teachers encourage them to cooperate with others.

Assumptions are widely shared values, however they might not be correct or free of limitations. Creative people question these assumptions and open up new possibilities that might finally lead to a breakthrough. Challenging assumptions and asking provoking questions are important elements for creative thinking style. As discussed in the previous chapter, Chinese society emphasizes collectivism and people like to fit into the norm instead of challenging the usual assumptions. However it was indicated from the comments of the students that teachers were very encouraging to students in exploring new opportunities, as said by some students: "teachers suggest trying new stuff", "encourage us to do new stuff when selecting the topic in order to be differentiated from the other students", and "teacher does not hope that students do traditional projects". The finding shows that students perceived that teachers encourage them to break with tradition.

As the conceptual model indicates, nurturing students' creativity needs to satisfy three criteria: firstly to provide students with opportunities to participate in creative activities; secondly to encourage them to participate in these creative activities; and thirdly to reward them for participating in these creative activities. So rewarding creative efforts is important in cultivating students' attitude in creativity. However, by means of rewarding creative efforts, we emphasize the creative efforts that students make instead of whether the ideas or products generated are good or bad. The findings show that students perceived that teachers appreciate creative ideas.

Type 2 Attitude

Students have diverse attitudes on the teaching attributes on Tolerating Ambiguity, Instructing and Assessing Creativity, Allowing Mistakes, Encouraging Idea Generation and Teaching Self Responsibility.

It is quite normal that when students work on a creative project, they will generate many ideas and try out many options on their project before they finalize their approaches or ideas. At this particular period, they might feel uncomfortable and ambiguous in their choices. Sometimes, if teachers notice that students are not progressing well in their work, they might request the students to make some quick decisions. This might interrupt the creative process of the students and prevent them from learning to deal with a state of ambiguity. The finding of this question shows that students have diverse attitudes towards the teaching approaches of the teachers. Moreover, I also identify that some students who give a positive rating in this question actually mentioned that teachers help them solve their problems: “teachers actively helped me to solve the problem”, “teacher gave his idea”, “teachers will solve the problem with me”, and “teachers assisted me in organizing and rearranging them”. Sometimes teachers also suggest students to avoid this ambiguous situation like some students said: teachers will “recommend me to choose some convenient methods”, “let me avoid those unnecessary troublesome”. Moreover, a few students also suggested that they did not run into this situation, possibly because they do not aim for challenges as claimed by some students: “I don’t want to work on a very challenging project in the final year project”, “I want to produce a simple and short story, and I just worry about my progress”. These comments might also explain why some students mentioned that they did not see any confusion or ambiguity in their working period.

Sometimes teachers limit students’ creativity by just asking inappropriate types of questions. Asking closed-type questions will not allow students to go beyond the information given. Open-type questions will provide opportunities for students to synthesize new ideas. So “instructing and assessing creativity” means to provide

appropriate instructions and assessment methods to induce students' creativity. Most of the students were neutral to this question because they saw teachers were doing it both ways – sometimes asking questions and sometimes providing answers. As some students said: "Sometimes teacher guided us to think and sometimes he gave us his suggestions", "teacher asked us how to solve the problems, and he also gave us his ideas", "teachers provided comments and asked questions as well". A few students had some interesting comments: "good teachers will not just ask question but also provide suggestions"; "my supervisor is a famous professional, so he will give his ideas directly". A few students also gave some very positive comments: "teachers will ask some more questions instead of giving answers directly", "firstly, teachers will let students express their thinking, then they will raise many questions and then give comments at last". The finding in this particular question shows diverse attitudes of students toward the teaching approaches of the teachers.

It is quite obvious that new ideas might not always work, but they allow us to learn from our mistakes and build a basis for other successful ideas. As discussed in the previous chapter, Chinese culture and education always emphasizes knowledge acquisition and appropriateness. However the findings for this question have a relative different result from the previous studies. Although the findings show dispersed scores, they are mainly located in the positive side as some students said: "works may not always be perfect, teachers always support the learning process", "teachers expect me to try more", "teachers will add marks for our efforts, because it is a demonstration of our hard work".

Sometimes the learning environment is not fully supportive of creative expression. Normally there is negative feedback on creative thinking because creative ideas do not follow conventions. In order to encourage idea generation from students,

teachers should allow students to express their ideas no matter whether they are valuable or not, and they should also be free of criticism. Moreover, encouraging idea generation does not look only for good ideas, but encourages students to develop a habit for new ideas. Two questions, Q9 and Q10, were asked in the interview.

The finding for Q9 (Do you think your ideas are always criticized or respected by your teachers during the discussion about your final year project?) shows the students perceived that teachers respect their ideas. Of course we have to further find out whether the teachers respect every idea or only new ideas. The comments from some students gave us some hints: “teacher will not criticize and he loves new ideas. Even if the ideas are not good enough, he will still encourage me to have a try”, “teacher accepts different types of idea and he will allow us to try more”. The comments provided by the students agree with the finding.

The finding for Q10 (Do teachers request you to think of more possibilities while creating your subject?) shows many students were quite neutral to this question, and had some diverse ideas on teaching approaches. Moreover, the major concern is why Q9 and Q10 have such big difference in results if both of them are meant to measure the same attribute – encourage idea generation. After reading through all the comments provided by the students, I find that the major problem is in the interpretation of the question by the students. Normally, the final year project is mainly divided into two stages. The pre-production stage requests students to develop ideas for their project. After they confirm their project topic, they move on to the production stage to deal with practical work. Most of the idea generation takes place in the pre-production stage and teachers will not encourage students to change their topic in the production period. Since the students might not pay attention to the questions that really focus on “developing their final year project title”, most of

them shared ideas such as, “many trials in the early stage”, “yes, during the early stage when selecting the topic but lesser in the later stage”, “teachers encourage more in the beginning and less after the topic was confirmed in the later stage”. By eliminating this error, the two questions show similar results.

The importance of teaching self-responsibility for nurturing creativity is to let creative people have a better understanding of the creative process, allow them to criticize themselves and enjoy their creative results. This owes to the fact that self-responsible people will engage in a more serious and detailed consideration of the situation when they decide to challenge assumptions or take sensible risks to pursue creative ideas. Although the result of this question is pretty diverse, the majority of students still showed positive attitudes as teachers requested that students be responsible for their decisions. The negative comments made by the students do not support a claim that the teachers undermine the responsibility of students. As students said: “If I am able to graduate, my teacher would not mind about the responsibility issue” and “the decision should be controlled by myself”.

Type 3 Attitude

Students have diverse and negative attitudes on the teaching attributes of Taking Sensible Risks.

It is understood that not all inventions will be successful. In order to generate creative ideas or products, students ought to take intellectual risks. However, the education system always emphasizes correctness, and failure or undesired results in the assessments might mean an inferior standard. Under such a system, students might not be willing to take risks in their works. In order to enhance students’ creativity, teachers have to encourage and even reward students in taking sensible risks.

Most of the findings in the second batch of interviews incline to the positive side. However on the question on taking sensible risks, the data shows students tend to have the attitude on the other side. The finding shows relatively dispersed results on this question and students tend to think that teachers expect them to be more conservative. Some of the students commented: “in creative art production, we have to make sure it is safe, even when taking risks”, “teacher will consider the benefit of the students whether we can graduate or not”, “teachers will not recommended (to take risk), the basic requirement is to complete the project as soon as possible”, “it is better to play safe and complete the project”. Although it seems that some students might have a perception that teachers are relatively conservative, almost half of the students have neutral perception on taking sensible risk. Some of the students claimed: “teacher hopes that the project could be finished on time, but he gives us freedom as long as we can guarantee the quality”, “emphasizes the time limit, but still supports making amendments”, “encourages risk taking more in the early stage, then emphasizes more playing safe”.

As discussed in the previous chapter, Chinese tend to emphasize knowledge absorbing. They value “appropriateness” more than “novelty”. The finding showing that students perceived that teachers are conservative in taking sensible risks is in agreement with the other studies.

6.6 Chapter Summary

This chapter provides a thorough analysis and interpretation of the findings in the previous chapter. In the discussion on research question 1, it is concluded that the teachers’ perception of the program objectives in training skillful animation talents is

because the policy of the education system demands them to ensure the immediate employability of their graduates. However, it is also argued that higher education institutes should not aim only at vocational training, they should also nurture creative talents to be prepared for the future demand to the future growth of the creative industries.

The discussion on research question 2 showed similar results to analogous studies in the UK. They also found that generally teachers and students do not have a clear conception of creativity. Their perception of the conception of creativity is also influenced by their culture. Owing to the emphasis on collectivism in the Chinese culture, teachers and students might incline to value acquiring appropriate knowledge higher than generating novelty.

The discussion on research question 3 indicated similar approaches suggested by educators that creativity training should not be an independent subject. Creativity nurturing should be incorporated into the daily classes.

In the discussion on research question 4, three types of attitudes are identified from the students on the teaching approaches of the teachers in nurturing creativity. The three types of attitudes and their corresponding attributes in teaching have been discussed in detail.

Chapter 7 Conclusions and Recommendations

7.1 Introduction and Overview

The rise of creative industries means there is a need to value individual creative talent and intellectual property. China sees the importance of creative industries and has started to develop the cultural and creative industries. The animation industry is one of the key areas that has received support from the cultural and creative industries policy, and some of them are transforming from OEM to ODM and OBM. The support of the animation industry also extends to animation education which is one of the major sources to produce a creative work force in the animation industry. A rapid increase of animation education programs was found to have occurred in recent years. However, many scholars pointed out that the recent rapid development in animation education created lots of problems. These scholars noted the importance of creativity but no article talked about creativity development in current animation education. This constitutes an important knowledge gap in the understanding of creativity development in animation education in China.

This qualitative research interviewed 92 teachers and students from 10 higher education institutes providing animation education in Beijing. The study explored the current situation of how animation education nurtured students' creativity, and identified what particular curricula and teaching methodologies teachers were using

in nurturing students' creativity. By using evidence collected from the research, I gained a better understanding of the overall situation of how students' creativity is nurtured in animation education in China and identified certain issues that should be further explored in our future study. The result of the study can contribute to theory-building in creativity research and help teachers gain better insights in how to nurture students' creativity through appropriate teaching methodologies. Followings are conclusions drawn from the findings of the research. It is followed by some recommendations for animation education and some suggestions for future research.

7.2 Conclusions

This multi-case research studied teachers and students in 10 education institues in Beijing (Appendix 5) and the purpose of this study is to explore the current situation in nurturing students' creativity in animation education in China. The conclusions from this study follow the research questions and the findings and therefore address four areas: (1) objectives of animation education in higher education institutes; (2) perceptions of teachers and students on the meaning of creativity; (3) curriculum fostering creativity in animation education; and (4) methodologies used in nurturing students' creativity in animation education. Conclusions of the study are:

7.2.1 Animation Education Provides Vocational Training

The findings in the research show that the majority of teachers suggested that the main purpose of animation education is to train professional animation talents with production knowhow and practical skills. Many of them also implied the program should prepare students for their immediate jobs. Although a few teachers also

emphasized providing a holistic education for students, the overriding concern of all participants was to provide sufficient knowledge and skills for the students to fulfil the job requirements.

The expectations of the participants in animation education can be explained by the current government policy. Since the government evaluates program performance on the graduates' employment rate, it creates a direct influence to the curriculum development to produce graduates that can fit the immediate industry demand. Since the animation industry is in a transformation stage, most studios are still producing primarily OEM work and a relatively small amount of original work, so the industry maintains a heavy demand for skillful animation workers, in a purely practical sense. On the other hand, some newly transformed OBM companies still retain the original OEM concept in their production. The industry people do not understand the value of creativity in the development of their business, so most of the time they undermine the importance of recruiting creative talents. The overall perception of these companies is to maintain a small number of creative people in the top positions and employ a large number of skillful animation workers to tackle the labor intensive animation productions.

Owing to the industry demand for skillful animators instead of creative talents, the teachers perceive that knowledge acquiring is more important than creativity nurturing for students. Since the industry only demands a limited number of creative talents in top positions, many teachers might not see the importance of fostering creativity in animation education.

The current demand from the industry is for skillful animation workers who can fulfill the skill requirements for production work. Animation companies only demand a limited number of creative talents in top positions. The higher education institutes

that provide animation education have to meet the industry demand and focus on training skillful animation talent. Fostering animation education is not their immediate concern. From this, one could draw the conclusion that the main objective of animation education in China is to provide vocational training in order to meet the immediate demand of the industry and the requirements of the government.

7.2.2 Confused Conception of Creativity

It has been identified in the findings that most of the participants did not have a clear conception of creativity. Although some of them related novelty to creativity, and a few of them also talked about appropriateness as one of the factors, the overall conception of creativity is very confused. There are multiple reasons that contribute to this situation.

As Chinese culture has traditionally always valued collectivism more than individualism, the nature of creativity that emphasizes questioning assumptions and risk-taking might not always be appreciated. The cultural influence might also affect schools in undermining the importance of creativity in education. From the previous findings, I have determined that neither teachers nor students could offer a clear articulation of their conception of creativity. This might be largely due to the fact that they never pay serious attention to the meaning of creativity. According to Niu's (2006) study, the first peer-reviewed journal article on creativity was published in 1983. Before 1995, there were fewer than ten publications in peer-reviewed journals on creativity and all of them were not empirical. This might further indicate the low level of perceived importance of creativity in China, at least until recently.

Teachers and students do not have a clear conception of creativity is due to the fact that the importance of creativity has been undermined in education, in work and in

the society. However, I also found that teachers seldom directly declared that creativity is not important. Most of them see creativity as important in animation education, but they could not give details on what they have done to promote creativity in the course. I could conclude that animation teachers and students have confused conceptions of creativity, because society and schools do not really emphasize the importance of creativity.

7.2.3 No Curriculum Plan for Fostering Creativity

The findings show participants do not have a common idea of the subjects that were used for nurturing creativity. Some of them suggested that production work helps fostering creativity. It is reasonable to conclude that, if the schools do not emphasize the fostering of creativity in their training, no particular effort will put into the curriculum for this concern. And if the teachers do not emphasize the fostering of creativity in their classes, it is impossible for them to identify any particular curricula elements or activities that are intended specifically to foster creativity.

Moreover, many scholars have mentioned that creativity cannot be taught as a subject. It should be widely embedded in the curriculum. Some scholars (Sternberg, 1996) also mentioned that fostering creativity is like promoting a habit, it is a change of attitude and it should be fostered by providing an opportunity to develop and reinforce the attitude through encouragement and rewards. I could draw a conclusion that there is no particular curriculum plan for creativity and fostering creativity in education should incroporate the teaching and learning activities into regular classes.

7.2.4 Limited Teaching Approaches for Nurturing Creativity

In the interviews, participants suggested some ways for nurturing students' creativity. Most of them emphasized providing students with freedom and encouragement to explore and test their ideas, and I see these suggestions might conflict with Confucian ideas of hierarchy, by which students are used to follow the teachers' instructions and recommendations. Allowing students to make their decisions will encourage novel ideas generation. The finding here agrees with the previous findings that participants see producing novel ideas or products is the key to being creative.

The statistical findings of the students' perceptions of teaching methods related to the conceptual framework indicate three types of attitudes. The type 1 attitude shows that participants agree with the conceptual framework and in unified perception. The type 1 attitude includes teaching attributes on "building self-efficacy", "defining and redefining problems", "allowing time for creative thinking", "encouraging creative collaboration", "questioning assumptions" and "rewarding creative idea or products". The type 2 attitude shows the participants agreeing with the conceptual framework but with diverse perceptions. The type 2 attitude includes teaching attributes on "tolerating ambiguity", "instructing and assessing creativity", "allowing mistakes", "encouraging idea generation" and "teaching self-responsibility". The type 3 attitude shows the participants disagreeing with the conceptual framework and with diverse perceptions.

I discovered that most of the teaching attributes in Type 1 are "passive attributes". They do not require teachers to make active effort to facilitate students in attaining the result. For example, "building self-efficacy" is a "passive attribute". It requires teachers not to express or imply limits on students' potential accomplishment (Sternberg, 2010). Teachers can avoid falling into this problem by merely making no comment on students' projects. Of course, a proactive teacher would encourage

students to explore more or guide them to consider some more alternative possibilities in idea generation. Similar arguments also apply to “questioning assumptions” and “allowing time for creative thinking”. I also found the comments from the students on the attribute “encouraging creative collaboration” mainly mentioned teachers do not actively discourage creative collaboration, but seldom said that teachers actively encourage or help students to find creative collaboration opportunities. It seems to me that the unified perceptions of the majority of students that teachers were doing very well in these teaching attributes might be because teachers do not have to make extra effort in satisfying these “passive attributes”.

Type 2 attitude shows that most of the students perceived the teaching approaches of the teachers to be in line with the conceptual framework but they report diverse perceptions on these attributes. The diverse perceptions of students might be due to most of the teaching attributes in this category being “active attributes”. For instance, “instructing and assessing creativity” requires teachers to ask “right questions”. These questions should not just demand factual recall but allow students opportunities in analytic and creative thinking. By teaching students with the manner of “instructing and assessing creativity”, teachers have to put additional effort in preparing teaching materials and to provide extra time to guide students. If teachers are not aware of the importance of this teaching approach, they might not or could not perform in this way. It is thus reasonable to expect that some teachers might teach in such a way and some might not. The teaching attribute “allowing mistakes” might seem like a “passive attribute”, but actually it works as an “active attribute”. Owing to the situation in China, if a student cannot complete their capstone project and get a passing mark in his final result, the supervisor might have to take responsibility for that, so most of the supervisors will encourage students to pay safe

in their capstone project. By allowing students to learn from mistakes, the teacher may have to pay extra effort to rectify the situation and help the students to catch up with their work. So it is in effect an “active attribute”. The diverse perceptions in type 2 attributes might mean some teachers are proactive in fostering creativity in their teaching approaches and some are not.

After considering thoroughly all findings and comments from students, I could draw a conclusion that there are only limited teaching approaches in nurturing creativity in animation education in China. Although there were some positive statistical feedback from the students on the teaching approaches, most of these attributes are “passive attributes” and I noticed that the majority of teachers were not able to suggest some more specific or detailed teaching approaches to foster creativity other than providing freedom for students.

7.2.5 The Dilemma of the Chinese Government in Promoting Creative Industries

The fast economic development of China in recent decades has already turned it into a manufacturing giant. However, China still relies heavily on its low cost of labor to attract outsourcing production from companies of developed countries. This foreign investment enterprise will move away from China if the favorable factor of low labor costs disappears. In order to maintain international competitiveness, China has explored some other opportunities to sustain its economic growth.

Cultural policy in China has long been used as propaganda for serving a political purpose. After China’s “reform and opening-up”, structural changes have been made in cultural development. China started to address the cultural industry as a subject for national policy-making in 1998. With the impact of Creative Industries development in the UK and the other countries, China adopted the term Cultural and

Creative Industry in a national strategy to initiate a structural refinement of the industrial sectors. Creative industries play a key role in enhancing China's core competitiveness and raising the added value of products and services. The development of creative industries is an important step in the process of China's modernization and development.

Creative Industries are fast growing industries that 'provide job opportunities, create wealth, produce consumer goods and services for local and overseas market, enable growth in overall consumption, promote social solidarity as well as export cultural influence' (HKADC, 2000). The key success of the creative industries is built upon the deployment of creativity through the exploitation of intellectual property (DCMS, 1998). Democratic societies do not consider creativity to be politically problematic, but this might not be necessarily be the case for authoritarian regimes (Wang, 2004). As suggested by Keane, "in a political system that views culture as a public resource, the momentum of market forces raises issues of 'national cultural security'" (Keane, 2013:3).

As creativity is always associated with "non-conformists", "eccentricity", and "abnormal" (Handy, 2004 and Guastello, 2009), it is often associated with deviation from a given national culture, and thus counter to the policy of many authoritarian regimes in emphasizing conformity. China as a socialist society which emphasizes collective development and social stability, thus possesses some innate internal barriers to the development of a creative culture.

In this study, the primary assumption of China developing cultural and creative industries is based on the fact that the rapid growth of China, which currently depends on the low cost of labor to attract outsourcing production from companies in developed countries, is unlikely to be sustainable as foreign investment enterprise

is already moving away to other countries as the cost of labor rises in China. Developing cultural and creative industries can help China to maintain competitiveness in the economic development. However, after the reform and opening of the economy of China in the 1990s, many state owned media and cultural institutions have been privatized. In order to protect these newly developed cultural industries from foreign competition, instead of using some dogmatic interventions, the national government promoted cultural industries with creativity and innovation as a national strategy to avoid the influx of foreign cultural products and influences (Li, 2011). Some scholars suggested that adopting the term creative industries for the cultural industries in China was done mainly "to evade the dogmatic structures of the state cultural policy" (Keane, 2013:3).

This argument can be illustrated by some policies implemented in the past few years aimed at preventing foreign influx of animation programs into China. The national government set up a regulation mechanism to curtail what was seen as undue influence of foreign cultural values through imported animation productions, by controlling the ratio of foreign to local animation broadcast by national and local television broadcasters. The national government also subsidized local original animation productions by offering additional rewards for productions shown in national or local television stations. However, neither the protection mechanisms nor the financial support to the local original animation productions was done with the intent of raising the creative quality of the animation productions.

Because the local operation of buying and selling of animation products takes place in a regulated market, the purchasing price of the local animation program is fixed at a certain amount per minute, irrespective of the quality of the productions. The additional financial support from the government also works in a similar format. Since

most of these newly developed original animation productions are not good enough to complete in the foreign market, many animation producers might try to maximize their profit by producing marginal products with minimized production cost. This leads to a quality issue in the original animation productions.

The protection mechanism of regulating the ratio of foreign to local animation broadcast does not create any positive effect in raising the creative quality of the local animation productions, but only increases the amount of low-quality animation productions in the local industry. The limited demand for creative talent from animation industry employers reflected in the research findings reinforces the argument that the national government's interest in the creative industries is not aimed at producing more creative products. Above all, the Chinese government still exercises a tight control and censorship on content shown in television broadcasts. This control policy also illustrates the intention of the government's conditional support to the development of creativity in the cultural and creative industries.

Moreover, it is also indicated in the previous findings that education institutions have no explicit or implicit objective in fostering creativity in education, nor any curriculum specifically aimed at nurturing students' creativity. It is also shown that the government does not have any plans in fostering creativity education or offering long-term support in nurturing creative talent for the development of the creative industries.

With the support of the above arguments and the research findings, I can conclude that China uses the term creative Industries to replace the more political and dogmatic term "cultural industries" with the aim to resist the influx of foreign cultural products, but it does not have a long term concern on promoting creativity in education.

7.2.6 The Demand for Creatiity and Innovation of the Creative Communities

Owing to the rapid changes in society, labor intensive jobs are being lost to lower-cost regions, the developed economies facing the challenge of achieving economic and social stability must consider the importance of knowledge and innovation in their national strategies. In order to achieve this goal, governments should facilitate the people to learn, and to learn how to learn (Hodgson, 2000). Nurturing a learning society with flexibility and creativity can help to promote sustainable economic growth and social stability. China as one of the biggest manufacturing countries is also facing similar situation. The rise of labour costs is driving many manufacturing jobs to regions like Vietnam, Thailand and African countries. The urgency of change to a more innovative and creative economy is high in China.

Most of the developed countries have gone through the transformation from an industrial economy to a knowledge economy. Success in a knowledge economy is built upon human capital. As suggested by Mahbubani (2008), Asian minds have been underused for centuries and they are now exploding with creativity. He also considers China, even though it is not a democratic society, shall play a leading role in this transformation.

Keane (2013) quoted the argument of Collins (1998) and expressed that creativity has been illustrated throughout Chinese history in the form of great inventiveness, scientific innovation and aesthetic achievement, and was not simply imported as the "West pre-packaged" creative industries in 2004. Although traditional Confucian culture, which emphasizes harmony and reciprocity, might create certain potential conflicts in the development of creativity in the way that it developed in Western cultures, with the inevitable growth of globalization and modernization, the demand

for creativity and innovation provides the opportunity for Chinese society to develop a special type of creativity which would be a fusion of Confucianism, socialism and capitalism.

As suggested by Keane (2013; 2007), China has gone through six stages of development in its creative economy: (1) standardized production, (2) imitation, (3) collaboration, (4) trade, (5) clusters, (6) creative communities. The six stages illustrate how China is moving from a simple material culture to an intangible, complex and fragmented digital economy. Keane also pointed out that the last stage of creative communities, which facilitate creation and recreation, is considered as the most revolutionary and potentially innovative stage in the timeline. The dialogue with both teachers and students in the interviews largely indicated their demands and expectations for creativity in education, thought they did not have a clear conception of the term or well-defined ways to actualize it in the education process. The present state of creative communities in China signals a demand for, and appreciation of creativity in the societal development irrespective the control of the state. This bottom-up approach of needs in the development of creativity can facilitate the growth of the creative industries.

I can draw a conclusion that conservative elements within the Chinese government are still apprehensive that advocating creativity in society might lead to destabilization. Some government organizations purposely emphasize the success of the socialist culture in order to dilute the importance of creativity in the cultural and creative industries development. However the demand for creativity and innovation in the creative communities is undeniable. In order to meet with this challenge, the Chinese government should “focus… on stimulating creative education rather than ensuring cultural maintenance” (Keane, 2013:47).

7.3 Recommendations

Based on the findings and the conclusions of this study, the following recommendations are made:

7.3.1 Promoting Creativity Education to Meet the Future Demand

Cultural and creative industries have been heavily promoted in the past few years in China and some of the animation companies are moving from OEM production to ODM/OBM production. However, I expect this transition might take a long time, and the animation industry should maintain its capacities in various types of works, including OEM, ODM and OBM, to enable balanced growth. Since different types of animation production demand different competences from students, higher education institutes can build on their individual strengths to develop diverse appropriate animation programs to fit the demands of industry. Some of the institutes might focus on production skills while some of them might emphasize creative talent development. However, it is a global trend that creativity is increasingly one of the components of education, and many countries have already set up corresponding strategies to foster creativity at various levels of education.

So I would recommend the higher education institutes should (based on their strengths and weaknesses) reposition themselves, and include the fostering of creativity as one of their education objectives. The institutes should also fully disseminate details of their program objectives and learning outcomes to the teachers and students. Without a proper understanding of the program objective and learning outcomes, it is very difficult for the teachers and program administrators to

maintain quality teaching and learning activities, and evaluate the programs' performance effectively.

7.3.2 Enhancing the Proper Conception of Creativity

The fast development of the cultural and creative industry sector in recent years shows that China has set a goal to promote creativity (Niu, 2006). However, it is impossible to foster creativity in education if the teachers do not have a clear conception of what creativity is. On the other hand, I am quite optimistic on this point, because I found many participants showing a positive attitude toward creativity. In my brief study of the use of words including "creativity", "innovation" and "original" for 251 Chinese journal articles, I found the Chinese term 'creativity' appears 289 times, "innovation" appears 270 times and "original" appears 256 times in these articles. I feel educators see the value of creativity but they might still have a confused conception of creativity. In order to develop a better understanding of creativity, I would recommend creativity researchers work closely with educators in finding an appropriate meaning (or meanings) of creativity and build a better understanding on the conception of creativity in a Chinese context.

7.3.3 Fostering Creativity in Education

In order to make fostering creativity in education successful, we have to make people see the benefits of being creative. Government promotion and support for creativity is important, but a top-down approach alone might not create real impact if the value of creativity is not widely shared by people. Sometimes, "a top-down approach can evoke feeling of hostility and teachers can feel underestimated and undervalued" (Joubert, 2001:32). Enabling society, industries, teachers and students to see the

benefits of creativity, and cultivate extrinsic and intrinsic motivation among them, can initiate momentum for the growth of creativity.

Fostering creativity in animation education should not be limited to education institutes. It should be a nationwide strategy and use both top-down and bottom-up approaches to let people see the benefits of being creative, and gradually adopt them as habits in an effective way to promote creativity.

7.3.4 Adopting the Theoretical Framework in Teaching for Creatvity

Since China has decided to promote cultural and creative industries as a national policy, the existence of a demand for creative animation talent will soon be realized by the industry. It is a global trend that fostering creativity in education becomes more and more important. In order to prepare our students to meet future challenges, we ought to take proactive action in implementing creativity education in our education system.

The theoretical framework of teaching for creativity (Appendix 6) developed in this research is a confluence of theories contributed by various scholars. It provides a comprehensive and practical framework for enhancing creativity. Sternberg pointed out that creativity is not only some kinds of abilities, but also a decision that supports the practice of creativity. Adopting the theoretical framework in animation education can provide teachers with a better understanding of the conception of creativity, some solid methods and approaches in fostering creativity, and a clear objective in nurturing creative animation talents to meet future demand.

7.4 Limitations of the Study

Although the researcher has made substantial efforts to ensure the trustworthiness of the research design, the study still contains some limitations in a few aspects. Some of the limitations are inherent from the nature of qualitative research, while others are in the implementation of the research design. Two key limitations are addressed in the following:

7.4.1 Limitation on the Use of Terminology in Both English and Chinese

Basically, the study focused on nurturing students' creativity in China and all of the research participants were Chinese. The language used in the interviews was Putonghua. The researcher did not find any major problem in the language issue. However, the key concern was on finding an equivalent term in Chinese language that could well represent the term "creativity". Niu and Sternberg (2003) have claimed that creativity research in China only has a short history and most of the creativity studies were related to gifted children. The scholars in the above-mentioned creativity study used the term "创造力". However, the term is not popular in general usage. As the development of the creative industries in China continues, the term "创意" is frequently used in various areas, and it is also well adopted in different usages and in scholarly works. The statistics I've collated examining the use of "创意" and "创造力" in chapter two conveys a clear message that "创意" is a more frequently used word, even in scholarly works in the animation education domain. There is an inherent risk to the validity of a study by using the Chinese term "创意" as being equivalent to creativity, but I see this as the best option at the time I conduct the study, and sufficient effort has been made to ensure the validity of the term used in the research. As some more researches will be conducted in the relevant areas, the

interchanging use of these terms will be recognized, and the limitation in this issue will be reduced.

7.4.2 Limitation on the Subjectivity of the Researcher

In qualitative research methodology, the data analysis process relies on the interpretation of the researchers. The credibility of this research is also limited by the subjectivity of the researcher. The researcher of this study has extensive experience in animation education in another region. However, the cultural differences in different regions may induce certain concerns about interpretation in the coding process. As indicated by Todd (2010), the majority of the researches and theories in studying creativity are from the western perspective, so the researcher tried to maintain the credibility of the study by inviting colleagues who have extensive experience in both regions to verify some of the initial codes. This ensures a more reliable result in the research process. Since a PhD study demands the demonstration of individual effort and ability to conduct original research, so the data analysis work cannot be shared by others. In a future study, this limitation could be minimized by introducing some more collaborators to participate in the data analysis process.

7.5 Recommendations for Future Research

This research project was inspired by the structural change in the animation industry and the rapid expansion of animation education in China. Animation training in China has a long tradition in nurturing skillful artists and workers for the OEM (Original Equipment Manufacturer) market. As the strategic development of the cultural and creative industries in China progressed, the animation industry and animation

education received substantial support from the government. Many schools and animation programs emerged. Many scholarly articles indicated that the rapid increase in animation programs created a number of problems. However, nurturing creativity as a core concern for animation education in the context of creative industries has not been addressed adequately. This creates a knowledge gap in our understanding of animation education in China. The objectives of the research were to explore current animation education in terms of its effectiveness in nurturing students' creativity in higher education institutes; to understand how teachers and students perceive the meaning of creativity in animation education; and to identify what particular curriculum measures and teaching methods teachers are being used in nurturing students' creativity in animation education in China. In order to bridge our knowledge gaps in fostering creativity in education, I shall recommend two directions for further studies.

7.5.1 Further Study of Fostering Creativity in Other Disciplines

Apart from fostering creativity in animation education, actually there is a growing concern that creativity education should be extended to all disciplines of education. For example, engineering should be a very creative discipline. All the ingenious technological innovations illustrate that engineering is by tradition a creative and innovative activity. However, Selinger asked himself in his book, "can engineers become more creative?" and he replied with a positive answer and said "yes, if engineers are open to new thinking and are willing to pursue ways to come up with fresh ideas to improve the products they design and build" (2004:113). Creativity education in engineering has long been a critical discussion topic for universities. Although creativity is important for professional engineers and it also serves the

intellectual development of students, it is argued that creativity has not been fully addressed in engineering education (Liu and Schonwetter, 2004; Kazerounian & Stephnay, 2007; Felder, 1988). Creativity is important to the engineering discipline, yet it also has the same importance in other disciplines such as business. A better understanding of how creativity is fostered in other higher education disciplines is important to the future study.

7.5.2 Further Study of Fostering Creativity in Primary and Secondary Education

Although the focus of this research is at the higher education level, study of nurturing students' creativity at various levels, including primary and secondary education, also deserve immediate attention. The establishment of the National Advisory Committee on Creative and Cultural Education (NACCCE) and the release of the NACCCE report focuses mainly on this concern. In order to address the issue of nurturing students' creativity in education, both top-down and bottom-up approaches should be considered. Joubert suggested "a bottom-up approach can ensure a feeling of ownership toward the initiative" (2001:32), so the understanding of teachers' conception of creativity and the way they promote teaching for creativity shall be an important direction in the future study.

In order to fully address the issue of nurturing students' creativity in education, extensive studies on both the breadth and depth of this topic are required. Based on the methods and conceptual framework developed for this study and the results drawn from this research, we can further expand the scope of the research to cover some horizontal and vertical studies of this topic. The results generated from these further studies could expand our knowledge in creativity education, contribute to

theory-building in creativity research and help teachers and policymakers who aim to foster creativity in education gain better insights in how to nurture students' creativity through appropriate teaching methodologies.

Appendix 1

List of the 423 Articles

1. 申晴,. 對現代高校動畫教育的思考[J]. 現代交際,2013,(6).
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Appendix 2

Ranking of the ability required for the animation major students

動畫專業學生需要的能力得分排序 (Ranking of the ability required for the animation major students)		
		平均得分 average score
2 創意思維	creative thinking	11.73
1 動畫專業知識	professional animation knowledge	9.96
4 手繪技能	drawing skills	8.73
6 文化素養	cultural understanding	8.33
7 藝術審美能力	aesthetic ability	8.14
3 電腦技能	computer skills	7.45
5 獲取新知能力	ability to acquire knowledge	6.90
9 團隊合作能力	team work ability	6.69
8 獨立工作能力	independent work ability	3.90
13 語言表達與溝通能力	expression and communication ability	3.39
11 適應環境能力	ability to adapt to the environment	3.33
10 組織管理能力	organization management ability	3.12
12 外語水平	foreign language level	2.45

Extracted from 李海玲, 2010 年中国动漫类专业高等教育发展报告, 中國動畫年鑑, 2010: 474

Appendix 3

98 higher education institutes in Beijing

	院校名称	院校隶属	层次	办学类型	院校类型	招生专业
1	北京大学	教育部	本科	大学	综合	43
2	中国人民大学	教育部	本科	大学	综合	44
3	清华大学	教育部	本科	大学	工科	42
4	北京交通大学	教育部	本科	大学	工科	37
5	北京工业大学	北京市教育委员会	本科	大学	工科	54
6	北京航空航天大学	工业和信息化部	本科	大学	工科	29
7	北京理工大学	工业和信息化部	本科	大学	工科	58
8	北京科技大学	教育部	本科	大学	工科	33
9	北方工业大学	北京市教育委员会	本科	大学	工科	28
10	北京化工大学	教育部	本科	大学	工科	32
11	北京工商大学	北京市教育委员会	本科	大学	财经	17
12	北京服装学院	北京市教育委员会	本科	学院	工科	19
13	北京邮电大学	教育部	本科	大学	工科	32
14	北京印刷学院	北京市教育委员会	本科	学院	工科	22
15	北京建筑工程学院	北京市教育委员会	本科	学院	工科	26
16	北京石油化工学院	北京市教育委员会	本科	学院	工科	24
17	北京电子科技学院	中央办公厅	本科	学院	工科	7
18	中国农业大学	教育部	本科	大学	农业	38
19	北京农学院	北京市教育委员会	本科	学院	农业	32
20	北京林业大学	教育部	本科	大学	林业	47
21	北京协和医学院(清华大学医学部)	卫生部	本科	学院	医药	2
22	首都医科大学	北京市教育委员会	本科	大学	医药	20
23	北京中医药大学	教育部	本科	大学	医药	10
24	北京师范大学	教育部	本科	大学	师范	45
25	首都师范大学	北京市教育委员会	本科	大学	师范	44
26	首都体育学院	北京市教育委员会	本科	学院	体育	9
27	北京外国语大学	教育部	本科	大学	语言	27
28	北京第二外国语学院	北京市教育委员会	本科	学院	语言	22
29	北京语言大学	教育部	本科	大学	语言	20
30	中国传媒大学	教育部	本科	大学	语言	45

31	中央财经大学	教育部	本科	大学	财经	38
32	对外经济贸易大学	教育部	本科	大学	财经	31
33	北京物资学院	北京市教育委员会	本科	学院	财经	21
34	首都经济贸易大学	北京市教育委员会	本科	大学	财经	47
35	外交学院	外交部	本科	学院	语言	8
36	中国人民公安大学	公安部	本科	大学	政法	11
37	国际关系学院	其他主管部门1	本科	学院	政法	10
38	北京体育大学	国家体育总局	本科	大学	体育	12
39	中央音乐学院	教育部	本科	学院	艺术	3
40	中国音乐学院	北京市教育委员会	本科	学院	艺术	3
41	中央美术学院	教育部	本科	学院	艺术	8
42	中央戏剧学院	教育部	本科	学院	艺术	12
43	中国戏曲学院	北京市教育委员会	本科	学院	艺术	10
44	北京电影学院	北京市教育委员会	本科	学院	艺术	8
45	北京舞蹈学院	北京市教育委员会	本科	学院	艺术	4
46	中央民族大学	国家民族事务委员会	本科	大学	民族	44
47	中国政法大学	教育部	本科	大学	政法	15
48	华北电力大学(北京)	教育部	本科	大学	工科	38
49	北京工业职业技术学院	北京市教育委员会	专科	高等职业技术学校	工科	22
50	北京信息职业技术学院	北京市教育委员会	专科	高等职业技术学校	工科	28
51	北京电子科技职业学院	北京市教育委员会	专科	高等职业技术学校	工科	39
52	北京京北职业技术学院	北京市教育委员会	专科	高等职业技术学校	工科	10
53	首都经济贸易大学密云分校	北京市教育委员会	专科	高等专科学校	财经	0
54	北京工业大学通州分校	北京市教育委员会	专科	高等学校分校	工科	0
55	中华女子学院	中华全国妇女联合会	本科	学院	语言	29
56	北京信息科技大学	北京市教育委员会	本科	大学	工科	32
57	中国矿业大学(北京)	教育部	本科	大学	工科	21
58	中国石油大学(北京)	教育部	本科	大学	工科	24
59	中国地质大学(北京)	教育部	本科	大学	工科	31
60	北京联合大学	北京市教育委员会	本科	大学	综合	97
61	北京城市学院	北京市教育委员会	本科	学院	综合	70

62	中国青年政治学院	中国共产主义青年团中央	本科	学院	政法	13
63	北京青年政治学院	北京市教育委员会	专科	学院	语言	18
64	首钢工学院	北京市教育委员会	本科	学院	工科	24
65	北京农业职业学院	北京市教育委员会	专科	高等职业技术学校	农业	33
66	北京政法职业学院	北京市教育委员会	专科	高等职业技术学校	政法	19
67	中国劳动关系学院	中华全国总工会	本科	学院	财经	23
68	北京财贸职业学院	北京市教育委员会	专科	高等职业技术学校	财经	17
69	北京北大方正软件职业技术学院	北京市教育委员会	专科	高等职业技术学校	工科	15
70	北京经贸职业学院	北京市教育委员会	专科	高等职业技术学校	财经	12
71	北京经济技术职业学院	北京市教育委员会	专科	高等职业技术学校	财经	16
72	北京戏曲艺术职业学院	北京市教育委员会	专科	高等职业技术学校	艺术	4
73	北京汇佳职业学院	北京市教育委员会	专科	高等职业技术学校	语言	9
74	北京现代职业技术学院	北京市教育委员会	专科	高等职业技术学校	工科	9
75	北京科技经营管理学院	北京市教育委员会	专科	高等职业技术学校	财经	22
76	北京吉利大学	北京市教育委员会	专科	高等专科学校	财经	27
77	首都师范大学科德学院	北京市教育委员会	本科	独立学院	语言	7
78	北京工商大学嘉华学院	北京市教育委员会	本科	独立学院	财经	9
79	北京科技职业学院	北京市教育委员会	专科	高等职业技术学校	工科	16
80	北京培黎职业学院	北京市教育委员会	专科	高等职业技术学校	语言	17
81	北京邮电大学世纪学院	北京市教育委员会	本科	独立学院	综合	13
82	北京工业大学耿丹学院	北京市教育委员会	本科	独立学院	综合	16
83	北京交通职业技术学院	北京市教育委员会	专科	高等职业技术学校	工科	13

84	北京经济管理职业学院	北京市教育委员会	专科	高等职业技术学校	财经	18
85	北京劳动保障职业学院	北京市教育委员会	专科	高等职业技术学校	综合	19
86	北京社会管理职业学院	北京市教育委员会	专科	高等职业技术学校	综合	10
87	北京新圆明职业学院	北京市教育委员会	专科	高等职业技术学校	综合	10
88	北京第二外国语学院中瑞酒店管理学院	北京市教育委员会	本科	独立学院	语言	2
89	北京体育职业学院	北京市教育委员会	专科	高等职业技术学校	体育	5
90	北京交通运输职业学院	北京市教育委员会	专科	高等职业技术学校	综合	0
91	北京大学医学部	教育部	本科	高等学校分校	综合	10
92	北京科技大学延庆分校	北京市教育委员会	专科	高等学校分校	工科	5
93	北京邮电大学宏福校区	教育部	本科	高等学校分校	工科	2
94	北京警察学院	北京市教育委员会	本科	学院	军事	0
95	北京航空航天大学中法工程师学院 研	北京市教育委员会	本科	学院	工科	0
96	空军指挥学院	中国人民解放军总政治部	本科	学院	军事	0
97	武警北京指挥学院	中国人民解放军总政治部	本科	学院	军事	0
98	武警指挥学院森林部队分院	中国人民解放军总政治部	本科	高等学校分校	军事	0

Appendix 4

36 higher education institutes in Beijing provide animation education programs

序号	院校名称	层次	办学类型	院校类型	学院名称(涉及动画的学院)	系名称(涉及动画的系)	专业方向
1	北京大学	本科	大学	综合	软件与微电子学院	数字艺术系	计算机动画创作
2	中国人民大学	本科	大学	综合	艺术学院	艺术设计系	新媒体设计、动画设计
3	清华大学	本科	大学	工科	美术学院	信息艺术设计	计算机动画创作
4	北京交通大学	本科	大学	工科		建筑与艺术设计	数字媒体艺术专业
5	北京科技大学	本科	大学	工科	继续教学学院		计算机动画专业
6	北京林业大学	本科	大学	林业	信息学院		动画专业 数字媒体艺术专业
7	北京工商大学	本科	大学	财经	艺术与传媒学院	数字媒体艺术系	动画与多媒体工程技术
8	北京师范大学	本科	大学	师范	艺术与传媒学院		数字媒体技术
9	北京语言大学	本科	大学	语言	信息科学学院	计算机科学与技术	数字媒体技术方向
10	中国传媒大学	本科	大学	语言	动画与数字艺术学院	动画系	动画（动画编导、动画设计、数字动画专业方向）
11	中央财经大学	本科	大学	财经	文化与传媒学院	艺术设计系	艺术设计专业
12	北京航空航天大学	本科	大学	工科	新媒体艺术与设计学院	数字动画艺术系	数字动画艺术

13	中央美术学院	本科	学院	艺术	传媒动画学院		动画
14	北京理工大学	本科	大学	工科	北京理工大学设计与艺术学院		数字仿真与动画艺术专业
15	首都师范大学	本科	大学	师范	美术学院		动画
16	北京工业大学	本科	大学	工科	艺术设计学院	数字媒体艺术设计系	动画，数字媒体艺术
17	北京印刷学院	本科	学院	工科	设计艺术学院	动画艺术	动画艺术与数字媒体技术
18	北方工业大学	本科	大学	工科	艺术学院	动画系	动画设计与数字动画
19	北京服装学院	本科	学院	工科	北京服装学院艺术设计学院		艺术设计、摄影、动画
20	中国戏曲学院	本科	学院	艺术	新媒体艺术系	新媒体艺术系	动画设计专业
21	北京电影学院	本科	学院	艺术	动画学院	动画系	动画艺术、电脑动画、漫画、游戏设计，动漫策划
22	北京联合大学	本科	大学	综合	北京联合大学商务学院		电脑美术设计方向
23	北京城市学院	本科	学院	综合		艺术设计	影视动画
24	首都师范大学科德学院	本科	独立学院	语言	艺术设计学院	艺术设计	数字动漫方向
25	北京工商大学嘉华学院	本科	独立学院	财经		语言与传播系	艺术设计
26	北京邮电大学世纪学院	本科	独立学院	综合	艺术与传媒学院		媒体艺术设计方向、媒体技术开发方向、数字媒体经营与管理方向
27	北京工业大学耿丹学院	本科	独立学院	综合		艺术设计系	动画专业

28	北京培黎职业学院	专科	高等职业技术学校	语言		艺术传媒系	电脑艺术设计专业,动画（数字动画工作室）
29	北京新圆明职业学院	专科	高等职业技术学校	综合		文化艺术系	影视动漫
30	北京工业职业技术学院	专科	高等职业技术学校	工科		信息工程系	动漫设计与制作专业
31	北京信息职业技术学院	专科	高等职业技术学校	工科		数字媒体与艺术系	计算机多媒体技术影视动画设计专业
32	北京北大方正软件职业技术学院	专科	高等职业技术学校	工科		多媒体艺术设计系	动漫设计与制作（影视动画制作）艺术设计（游戏动画设计）
33	北京经贸职业学院	专科	高等职业技术学校	财经		艺术设计系	艺术设计（现代传媒）
34	北京经济技术职业学院	专科	高等职业技术学校	财经		新闻与影视艺术系	多媒体设计与制作专业（动漫设计与制作方向）
35	北京汇佳职业学院	专科	高等职业技术学校	语言		动画系	二维手绘动画专业方向，二维 Flash 动画专业方向， 三维动画专业方向，游戏制作专业方向，影视多媒体技术专业

36	北京科技职业学院	专科	高等职业技术学校	工科	动漫游戏学院		多媒体设计与制作专业，游戏软件专业（游戏美术方向/创意设计方向/ 网络设计方向/ 影视后期方向/ 数码影像方向），动漫设计与制作专业，影视动画与特效设计专业，玩具设计与制造（功能与造型设计方向）专业，

Appendix 5

The list of faculty and students in the 10 education institutes participated in the research.

NO.	Name of Institution	Faculty (Pseudonym)	Students (Pseudonym)
1	Beihang University	Bobby	Wayne
			Lauren
		Camilla	Bert
			Ronald
2	Beijing Film Academy	Galen	Alison
			Karry
		Lewis	Edmund
			Penny
3	Beijing Institute of Fashion and Technology	Hayden	Charlie
			Benson
		Fred	Eric
			Patrick
4	Beijing Institute of Graphic Communication	Kash	Glen
			Haylie
		Justine	Dawn
			Ashley
5	Beijing Technology and Business University	Venus	Maple
			Herman
		Daniel	Teddy
6	Beijing University of Technology	Claudia	Moss
			Steward
		Hank	Zac
			Kimbery
7	Central Academy of Fine Arts	Mark	Daisy
8	Communication University of China	Norah	Fabien
			Summer
		Adam	Isabell

9	Renmin University of China	Byron	Jenna
10	Tsinghua University	Sidney	Carol
			Oscar
		Eddy	

Appendix 6

Theoretical Framework of Teaching for Creativity

Ways to Develop Students' Creativity	Opportuni-ty	Encourage-ment	Reward
Creative Thinking Style			
Redefining problems (allow students to make their own decision)	o		
Questioning assumptions (how students think and how they ask)	o		
Allowing time for creative thinking	o		
Independent Personality			
Taking sensible risks (take intellectual risks)	o	o	
Tolerating ambiguity (creative ideas come up in bits and pieces)	o		
Taking self-responsibility		o	
Strong self-efficacy (ensure students' ability)	o	o	
Intrinsic Motivation			
Instructing and assessing creativity (ask stimulating questions)	o		o
Rewarding creative ideas and products			o
Supporting Environment			
Encouraging idea generation (free of criticism)	o		
Encouraging cross-fertilizing ideas	o		
Allowing mistakes	o		

The matrix shows the various elements that contributed to the teaching for creativity

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